
THE AMERICAN ECONOMIC REVIEW

BERNARD F. HALEY, Managing Editor

DORIS MERRIAM, Assistant

BOARD OF EDITORS

Rendigs Fels
Arnold C. Harberger
Alfred E. Kahn
Joseph A. Pechman

Melvin W. Reder
Tibor Scitovsky
Robert Solow
Wolfgang F. Stolper

Volume LI

DECEMBER 1961

Number 5

ARTICLES

- The American Baby Boom in Historical Perspective *R. A. Easterlin* 869
- The Role of Money in Trade-Balance Stability:
Synthesis of the Elasticity and Absorption
Approaches *S. C. Tsiang* 912
- Differential Changes in the Prices of Consumers'
and Capital Goods *R. A. Gordon* 937
- The Elasticity of the Marginal Efficiency Function *Lorie Tarshis* 958
- The Size Structure of the Largest Industrial Firms,
1909-1958 *N. R. Collins*
and L. E. Preston 986
- The Simultaneous Determination of Spot and
Futures Prices *J. L. Stein* 1012

COMMUNICATIONS

- Investment in Human Capital:
Comment *Harry G. Shaffer* 1026
Reply *T. W. Schultz* 1035
- The Differential Effects of Tight Money:
Comment *Deane Carson* 1039
Reply *G. L. Bach and C. J. Huizenga* 1042
- Measuring the Success of the Elementary Course:
Comment *Rendigs Fels* 1044

BOOK REVIEWS

- ADLER, Recursos financieros y reales para el desarrollo, by J. Grunwald 1078
- ASHWORTH, An Economic History of England 1870-1939, by J. R. T. Hughes 1087
- BENOIT, Europe at Sixes and Sevens—The Common Market, the Free Trade Association and the United States, by W. J. R. Woodley 1111

Manuscripts and editorial correspondence relating to the regular quarterly issues of this REVIEW should be addressed to Bernard F. Haley, Managing Editor of THE AMERICAN ECONOMIC REVIEW, Stanford University, Stanford, California. *Style Instructions* for guidance in preparing manuscripts in acceptable form will be provided upon request to the editor.

No responsibility for the views expressed by authors in this REVIEW is assumed by the editors or the publisher, The American Economic Association.

Copyright American Economic Association 1961

BENSUSAN-BUTT, On Economic Growth—An Essay in Pure Theory, by E. D. Domar	1062
BÖHM AND WILLE, Direct Costing und Programmplanung, by E. M. Fels	1112
BOLINO, The Development of the American Economy, by R. B. Sheridan	1086
BOMBACH, editor, <i>Stabile Preise in wachsender Wirtschaft: Das Inflationsproblem</i> , by F. Machlup	1058
BRY, Wages in Germany, 1871-1945, by K. R. Petshek	1120
BUTLER, Labor Economics and Institutions, by E. F. Cheit	1126
CARTER AND SNAVELY, Intermediate Economic Analysis, by S. Schoeffler	1071
CSIKOS-NAGY, <i>Problémy cenooobrazovania i politika tsen</i> (Problems of Price Formation and Price Policy), by V. Holubnychy	1093
ERLICH, The Soviet Industrialization Debate, 1924-1928, by B. Shoul	1082
FELS, Challenge to the American Economy, by K. A. Knopf	1047
FLORENCE, Ownership, Control and Success of Large Companies: An Analysis of English Industrial Structure and Policy, 1936-1951, by R. W. Mayer	1115
GREENHUT AND JACKSON, Intermediate Income and Growth Theory, by R. S. Weckstein	1072
HAAVELMO, A Study in the Theory of Investment, by J. A. Stockfish	1064
HARRIS, editor, American Economic History, by H. J. Cranmer	1076
HARRISS, Money and Banking, by E. W. Lawson	1102
HENDERSON, National Income: Statistics and Dynamics, by V. C. Heck	1074
HICKMAN, Growth and Stability of the Postwar Economy, by S. G. Triantis	1066
HICKS, Development from Below: Local Government and Finance in Developing Countries of the Commonwealth, by H. P. Wald	1103
HIRSCHMANN, editor, <i>Latin American Issues: Essays and Comments</i> , by T. A. Sumberg	1080
IMBERT, <i>Des mouvements de longue durée Kondratieff</i> , by G. Garvy	1096
ISE, Our National Park Policy: A Critical History, by E. N. Castle	1117
JOCHIMSEN, <i>Ansatzpunkte der Wohlstandsökonomik</i> , by W. Froehlich	1068
LYON, Investment Portfolio Management in the Commercial Bank, by A. F. Brimmer	1100
MARGET AND TRIFFIN, <i>Los pagos internacionales y la política monetaria</i> , by O. Herschman	1109
MESTMÄKER, editor, <i>Franz Böhm: Reden und Schriften</i> , by R. C. Bernhard	1046
MOORE, editor, <i>Business Cycle Indicators</i> , by M. Bronfenbrenner	1094
MORRIS, Fundamentals of Economics, by J. E. Maher	1049
RÄDLER, <i>Die direkten Steuern der Kapitalgesellschaften und die Probleme der Steueranpassung in den sechs Staaten der europäischen Wirtschaftsgemeinschaft</i> , by F. K. Mann	1106
SALANT AND VACCARA, Import Liberalization and Employment, by M. E. Kreinin	1107
SCHURR AND NETSCHERT, <i>Energy in the American Economy 1850-1975: Its History and Prospects</i> , by L. G. Hines	1116
SELLIER, <i>Stratégie de la lutte sociale: France 1936-1960</i> , by E. J. Berg	1124
SHUBIN, Managerial and Industrial Economics, by D. J. Hart	1113
SIRKIN, Introduction to Macroeconomic Theory, by D. A. Baerncopf	1075
SMITH, Federal Tax Reform, by C. W. Macy	1105

SOMERS AND SOMERS, Doctors, Patients, and Health Insurance, by M. Roberts	1129
STIEBER, The Steel Industry Wage Structure—A Study of the Joint Union-Management Job Evaluation Program in the Basic Steel Industry, by S. Barkin	1118
TAMAMES, Estructura económica de España, by J. Hein	1085
TRIPP, Labor Problems and Processes, by T. Wolfson	1127
TSURU, editor, Has Capitalism Changed? An International Symposium on the Nature of Contemporary Capitalism, by M. E. Dimock	1091
WEINTRAUB, Classical Keynesianism, Monetary Theory, and the Price Level, by P. W. Cartwright	1056
WERNETTE, Growth and Prosperity Without Inflation, by M. O. Clement	1069
WILSON, Inflation, by M. Friedman	1051
Government Price Statistics, Part I. Hearings and Report, Subcommittee on Economic Statistics. Joint Economic Committee, by A. E. Pierce	1089
1960 Survey of Consumer Finances, by J. L. Weston	1098

OTHER DEPARTMENTS

Titles of New Books	1132
Periodicals	1148
Notes	1161

The American Economic Review

VOLUME LI

DECEMBER 1961

NUMBER FIVE

THE AMERICAN BABY BOOM IN HISTORICAL PERSPECTIVE

By RICHARD A. EASTERLIN*

The attitude of economists toward population growth is curiously ambivalent. The *effects* of population growth are accepted as important and have been accorded considerable analytical attention. One need only recall the prominent role played by declining population growth in the secular stagnation thesis of the late 'thirties and early 'forties [19] [20] [24].¹ With regard to the *causes* of population growth, however, the attitude of economists can best be characterized as *laissez-faire*.² At the risk of generalizing too freely, it would probably be fair to say that the typical treatment of population growth in economic theories is as an exogenous variable, whose movement is given by demographers. One purpose of the present paper is to suggest that there is scope for fruitful research into the causes of population change compatible with economists' training and experience. The vehicle for this

* This is a study by the National Bureau of Economic Research, and has been approved for publication by its Board of Directors. It will be reprinted in the National Bureau's series of Occasional Papers. The paper is part of a broader inquiry into long swings in American economic growth being conducted at the NBER under the direction of Moses Abramovitz [1].

The author, a member of the National Bureau's research staff, is professor of economics, University of Pennsylvania. This paper owes a substantial debt to Moses Abramovitz and Simon Kuznets; to Dorothy Swaine Thomas, Everett S. Lee, and Hope Tisdale Eldridge of the University of Pennsylvania Population Research Center; and, for excellent research assistance, to Chantal de Molliens, Søren T. Nielsen, Radivoj Ristic, and Marcel Tenenbaum. The author also wishes to thank Gary S. Becker, Arthur A. Campbell, Joseph S. Davis, Solomon Fabricant, Jacob Mincer, and Geoffrey H. Moore for their critical review of the manuscript. The comments of V. W. Bladen, Marion B. Folsom, Gottfried Haberler and H. W. Laidler of the National Bureau's Board of Directors were of value. Use of the facilities of the Stanford University Research Center in Economic Growth in 1960-61 is gratefully acknowledged. James F. McRee, Jr., edited the manuscript and H. Irving Forman drew the charts.

¹For an excellent analysis of the consequences of the rise in the rate of population growth associated with the baby boom, see Joseph S. Davis [10] and, more recently, [8].

²It is encouraging to be able to note some significant recent exceptions provided by the work of Gary S. Becker [70, pp. 209-31], Everett E. Hagen [18], Harvey Leibenstein [32], and Bernard Okun [36].

discussion is the recent baby boom. We first take a fresh look at the historical record in the light of the Kuznets-cycle conception of economic change,³ taking care to distinguish the experience of three population groups with significantly different patterns—foreign-born, native-born urban, and native-born rural. Then some possible reasons for the patterns observed are explored. The analysis is confined to the white population because of the greater reliability of the data for this group and its predominant influence in determining the pattern for the total.

I. Kuznets Cycles in U.S. Population Growth and Fertility

A. The Rate of Total Increase

We start with the rate of population growth. Since we are interested in focusing on major movements, we employ five-year averages of the basic data,⁴ a choice governed partly by preference—to eliminate or at least reduce the shorter-term changes associated with the ordinary business cycle—and partly by necessity—because of the initial mold in which some of the basic data are cast, particularly those relating to fertility.

Figure 1 shows the average rate of increase of the U.S. white population in successive quinquennia from 1870-75 to 1955-59. The familiar downward drift through the 1930's and the recent increase are immediately apparent. Less familiar, but equally obtrusive, are significant fluctuations in the rate of change. The duration of the fluctuations has run from 10 to 35 years and their average magnitude has amounted to about one-quarter of the mean rate of change over the period as a whole. In a recent article [27] these fluctuations were subjected to analysis by Simon Kuznets, who found that while all three components of population change—fertility, mortality, and immigration—showed evidence of these swings, either in level or rate of change, major surges and relapses in immigration typically accounted for the

³See the studies by Simon Kuznets [26]-[29], Moses Abramovitz [1] [3] [4], and Arthur F. Burns [7]. Among recent contributions are Brinley Thomas [42], R. C. O. Matthews [35, Ch. 12], and P. J. O'Leary and W. Arthur Lewis [37]. The name "Kuznets cycle" is suggested by O'Leary and Lewis and is adopted here because it is a more distinctive designation of these (typically) 15- to 20-year movements than are terms such as "long swings" or "long waves," which may be confused with the much longer Kondratieff. It is somewhat regrettable that O'Leary and Lewis used the term "cycle," with its inevitable implications of a self-generating process, rather than a more neutral word such as "movement." Use of the designation here is not intended to imply commitment to a self-generating view of these fluctuations.

⁴For the rate of total increase, the average is implicit. The rate, which is actually calculated from observations on the population stock separated by five years, yields a time pattern equivalent to that of a geometric average of the annual rates of change within the successive quinquennia.

greatest part of the change in total. He then linked these waves in immigration to corresponding swings in the rate of development of the U.S. economy, and suggested that the immigration movements were best explained as a response to swings in the demand for labor in the United States. This view has been supported along somewhat different lines by Moses Abramovitz and the present writer [3] [4] [11].

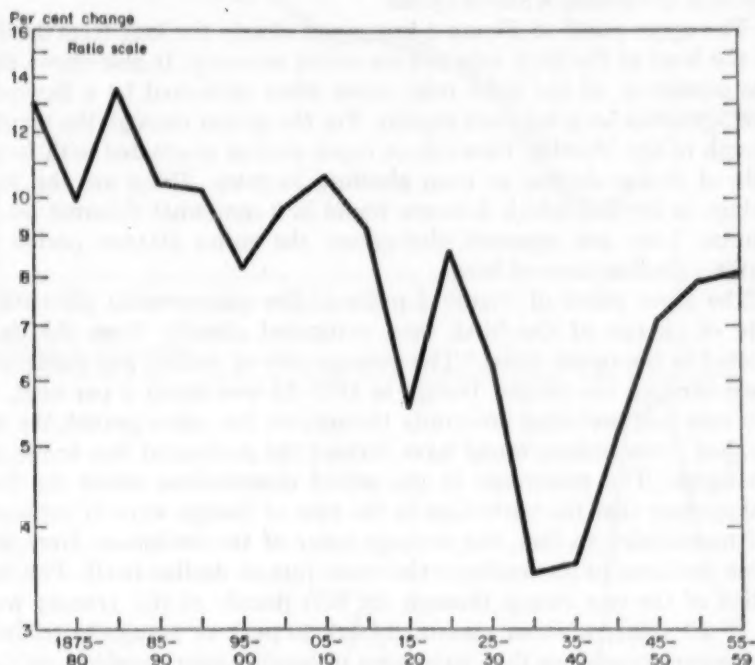


FIGURE 1. RATE OF CHANGE OF TOTAL WHITE POPULATION, 1870-75/1955-59

Source: Table A-1.

Since 1870, then (and indeed even before [27, p. 36] [29]) the historical record has consistently been marked by major swings in the rate of population growth. But since the source of the recent upsurge in the rate of population growth has been a rise in the birth rate rather than in immigration, one might maintain that this recent increase bears only a surface resemblance to prior swings and that, given the new immigration restrictions of the 'twenties, recovery in the rate of growth was hardly to be expected. Whether this view is correct or whether the recent movement does bear a logical relation to its forebears is a question to which we shall return toward the end of the paper.

B. *The Birth Rate of the Total White Population*

Let us turn to the component of population change that constitutes the center of our interest, the birth rate. Recent work has made it possible to reconstruct a full century of fertility experience for the white population of the United States.⁸ The annual birth rate estimates have been averaged here for successive quinquennia, in keeping with our interest in discerning Kuznets cycles.

The upper panel of Figure 2 brings out clearly the long-term decline in the level of the birth rate and its recent recovery. It also shows that the movement of the birth rate—even when smoothed by a five-year average—has been far from regular. For the period through the secular trough of the 'thirties, intervals of rapid decline alternated with intervals of slower decline or even absolute increase. These are the long swings in fertility which Kuznets found in a somewhat different set of figures. They are apparent throughout the entire 80-year period of fertility decline covered here.

The lower panel of Figure 2 presents the quinquennial percentage rate of change of the birth rate, computed directly from the data plotted in the upper panel.⁹ The average rate of decline per quinquennium through the secular trough in 1935-39 was about 6 per cent. If this rate had prevailed uniformly throughout the entire period, the individual observations would have formed the horizontal line shown in the figure. The movement in the actual observations about the line makes clear that the variations in the rate of change were of substantial magnitude; in fact, the average value of the deviations from the mean amounts to six-tenths of the mean rate of decline itself. The duration of the two swings through the first decade of this century was 15 to 20 years, whether measured peak to peak or trough to trough. The movements since then have been of much longer duration, on the order of 35 to 40 years.

⁸ Economists are perhaps not generally aware of the scarcity of historical data on population change. When Kuznets made his study only four years ago, there were no annual data on the crude birth rate before 1909. The new series, extending our perspective to the years before the Civil War, is the product of a doctoral dissertation by Melvin Zelnick, carried on at the Office of Population Research, Princeton University, under the supervision of Ansley Coale [73]. The estimates were derived by applying appropriate mortality rates to the decennial census single-year-of-age distributions adjusted for "age heaping" (excessive reporting of certain ages, primarily those ending in 0 and 5). As the upper panel of Figure 2 shows, the patterns traced by these and the official estimates in the overlap period are virtually the same; for earlier dates, however, the Zelnick figures are somewhat less reliable because of the lesser accuracy or availability of data needed for the estimates.

⁹ To avoid confusion, it should be noted that (1) it is the birth rate itself and not the rate of change therein that is the component of the rate of total population change shown in Figure 1, and (2) swings in annual birth or fertility rates do not necessarily imply swings in the completed fertility of successive population cohorts.

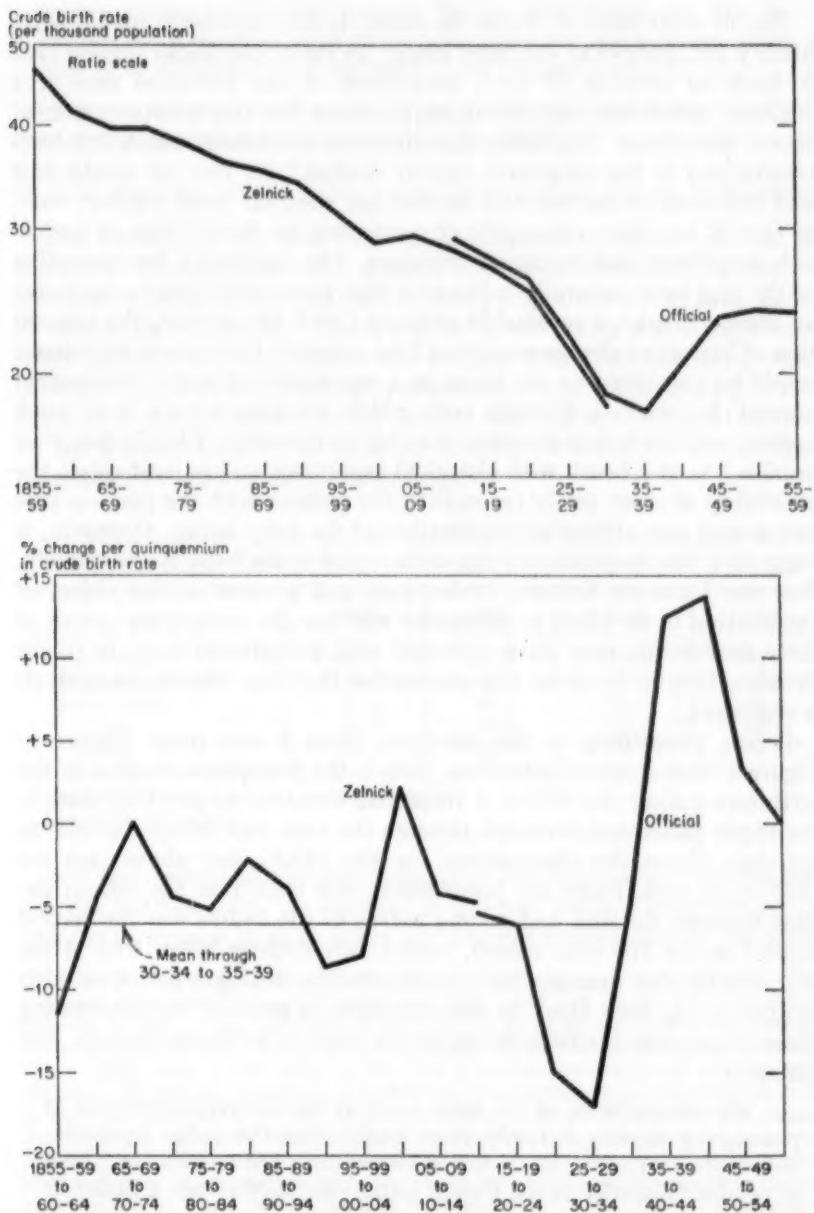


FIGURE 2. LEVEL AND RATE OF CHANGE, CRUDE BIRTH RATE OF TOTAL WHITE POPULATION 1855-59/1955-59

Source: Table A-2.

But of what interest, it may be asked, is this exercise in quantitative history for analysis of the baby boom? In reply, one might suggest that it leads to revision of one's conception of the historical record, a revision which has significant implications for the interpretation of recent experience. Typically, the historical movement which has been emphasized is the long-term secular decline.¹ To this we would now add the observation that this decline has been far from regular; that, in fact, it has been repeatedly characterized by fluctuations of noticeable amplitude and substantial duration. The customary interpretation of the past leads naturally to the view that recent experience constitutes an abrupt break—a reversal in primary trend. In contrast, the conception of historical change employed here suggests that recent experience *might* be conceived as the latest in a succession of major movements around the trend—a Kuznets cycle which, for some reason, is of much greater amplitude and duration than its predecessors. Clearly this view implies less of a break with historical experience and at least raises the possibility of more easily reconciling the present with the past—a *sine qua non* of any attempted explanation of the baby boom. Moreover, it suggests a new research strategy with regard to the baby boom, namely, that one focus on Kuznets cycles, past and present, as the object of explanation in an effort to determine whether the underlying causes of these movements may have operated with exceptional force in recent decades. It is in terms of this conception that the subsequent analysis is organized.

Before proceeding to this analysis, there is one more feature of Figure 2 that deserves attention. This is the precipitous decline in the birth rate during the 1920's. A trend line fitted to the pre-1920 data in the upper panel and extended through the next two decades would lie not only above the observations for the 1930's, but above that for 1925-29 as well. From the lower panel, one finds that the rate of decline between the first and second halves of the 1920's was the second highest in the 100-year record, falling only slightly below that in the next overlapping decade. This drastic decline during a period of high prosperity has been cited by demographers as grounds for discounting efforts to explain the baby boom on the basis of economic factors. For example:

... the interpretation of the baby boom as the natural consequence of prolonged prosperity is hardly more tenable than the earlier interpretation of the reversal in the 1930's as momentary. The next earlier period of notable prosperity in the United States—the 1920's—was a period of

¹ For examples of this see [66] [54] and more recently [16, Ch. 2, 11] [41, Ch. 13] [13].

sharply falling fertility. In fact, as Dudley Kirk points out, the depressed 1930's produced *more* births by far than one would expect on the basis of an extrapolation of the trend of the prosperous 1920's.⁸

Clearly, an attempt to reconcile present with past experience must devote special attention to the record for the 1920's.

C. *The Fertility of the Native and Foreign-Born White Populations*

The fertility of the total white population is a composite of that of a number of subgroups, each subject in part to distinctive, in part to common, influences. We can gain further perspective on the baby boom if we consider separately the experience of the native and foreign-born white populations, and, within the former, the urban and rural components. Table 1 indicates the proportion of total white females of reproductive age accounted for by each of these groups at various dates. In the present section, we consider fertility patterns for the foreign-born and *total* native white populations.

TABLE 1—PERCENTAGE DISTRIBUTION OF WHITE FEMALES, 20-44, BY NATIVITY, AND OF NATIVE WHITE FEMALES, 20-44, BY RURAL-URBAN RESIDENCE, 1890-1950

	1890	1910	1930	1950
Total white	100.0	100.0	100.0	100.0
Foreign-born white	20.9	19.9	14.7	4.6
Native white	79.1	80.1	85.3	95.4
Urban	30.2	39.6	51.5	64.7*
Rural	48.8	40.5	33.8	30.7

* Based on 1950 census definition of "urban."

Source: Census reports.

For our dependent variable, instead of the crude birth rate we now use the fertility ratio, the number of children under 5 years old to the number of women 20 to 44 years old, a choice necessitated by the avail-

⁸ Ansley J. Coale, Introduction, in [70, pp. 5-6]. The reference is to Dudley Kirk, "The Influence of Business Cycles on Marriage and Birth Rates" [70, pp. 241-60]. The method followed by Kirk in his analysis is to correlate "trend deviations of economic measures (as independent variables) to measures of nuptiality and natality (as dependent variables)" [70, p. 242], using fertility data for the total population for the period 1920-58. While the results are relevant to analysis of fertility variations within the ordinary business cycle, in our view they cannot be used to draw inferences about the baby boom. The "trend" lines fitted for the period 1920-58 largely reproduce the Kuznets cycle which constitutes the baby boom. By concentrating on explaining deviations from "trend," Kirk in effect eliminates from his analysis the baby boom itself. Moreover, even with regard to business cycle analysis, it would be of interest to distinguish components of the total population whose fertility was subject to substantially different influences, as is done below for Kuznets cycles.

able data.⁹ As the following figures suggest, the fertility ratio typically exceeds the crude birth rate by a factor in the neighborhood of 20 to 25: Analytically, this reflects the fact that the fertility ratio is computed from (a) a denominator about one-fifth as large as that for the crude birth rate (females aged 20-44 instead of the total population), and (b) a numerator four to five times as large. (Implicitly, birth experience over a five-year period is totaled rather than averaged, and is multiplied by a survival rate on the order of .85 to .95 to exclude those dying before the end of the period.) Thus the time patterns traced by the

Total White Population	1885-89	1905-9	1925-29
Crude birth rate, annual average	35.3	29.4	22.4
Fertility ratio, next census date	744	632	505

two measures may differ somewhat because of variations in the ratio of women aged 20-44 to the total population and in the mortality of children under 5 years, particularly in infant mortality.¹⁰

Figure 3 presents fertility ratios for the foreign-born white population from 1875-79 to 1925-29, and, supplemented by general fertility rates, for the native and total white populations for somewhat longer periods.¹¹ The observations on fertility ratios are at census and mid-census dates, but since they reflect fertility behavior over the preceding five years, we have dated them according to the quinquennia to which they refer. The lower panel shows the percentage rate of change per quinquennium in each series, computed in the same fashion as for the preceding figure.

Several points deserve mention. First, Kuznets cycles are evident in the series for both the native and foreign-born groups. Through 1925-

⁹ A good discussion of the conceptual and statistical problems relating to the fertility ratio is given in [16, p. 13 and App. A].

¹⁰ For the total white population, the only one for which comparison is possible, the directions of change in the rate of change of the crude birth rate and of the fertility ratio are identical from 1885-89 on, the principal period of the analysis, with the exception of the movement from 1905-9/1910-14 to 1910-14/1915-19. This disparity is primarily due to an understatement of the fertility ratio for 1910-14, because no adjustment was made for the exceptional effect of the influenza epidemic of 1918.

¹¹ The fertility ratio estimates, prepared in connection with the present study, are based in large part on a valuable unpublished memorandum prepared by Everett S. Lee providing age and parentage detail underlying the quinquennial estimates of native white population published by Kuznets [27]. Because of omissions or defects in the recent reporting of parentage and nativity, it was not possible to continue these estimates beyond 1925-29. However, to provide some idea of the pattern after 1925-29, use has been made of the official estimates of the closely comparable general fertility rate (live births per 1,000 females aged 15-44) for the total and native white populations.

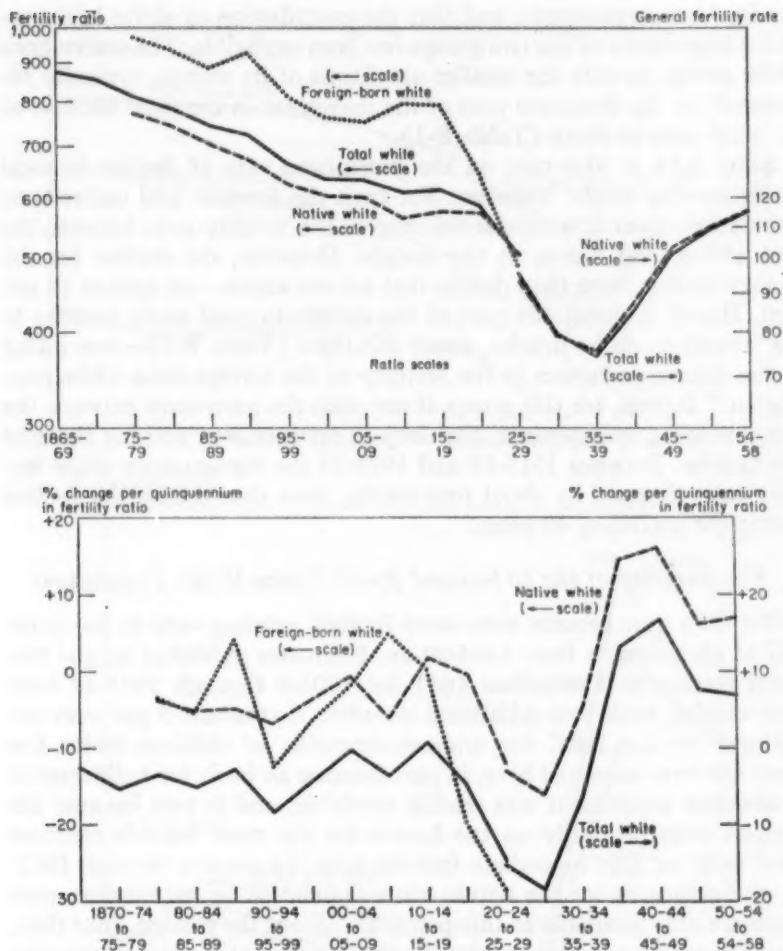


FIGURE 3. LEVEL AND RATE OF CHANGE OF FERTILITY RATIO, 1865-69/1925-29,
AND OF GENERAL FERTILITY RATE, 1920-24/1954-58,
TOTAL WHITE POPULATION BY NATIVITY

Source: Table A-3

29, the timing of the swings appears to be usually the same, but the amplitude is substantially greater for the foreign-born white. There is some suggestion of increasing amplitude, particularly for the native white, and in the most recent period the magnitude of the swing for this group is strikingly greater than previous ones. Arithmetic analysis of the swings in the total white group shows that they are caused in important measure by the fertility movements of both the native and

foreign-born components, and that the contribution of shifts in the relative importance of the two groups has been negligible. The native-born white group, despite the smaller amplitude of its swings, typically accounted for the dominant part of the movement in the total because of its much greater share (Table B-1).

Some light is also cast on the precipitous rate of decline in total white fertility in the 'twenties. For both the foreign- and native-born populations there is a substantial drop in the fertility ratio between the first and second halves of the decade. However, the decline for the foreign-born is more than double that for the native—29 against 12 per cent. Hence, a significant part of the decline in total white fertility in the 'twenties—to be precise, about one-third (Table B-1)—was owing to the drastic reduction in the fertility of the foreign-born white population.¹² Indeed, for this group, if one adds the movement between the two preceding quinquennia, the drop in fertility was nothing short of spectacular. Between 1915-19 and 1925-29 the foreign-born white fertility ratio dropped by about four-tenths, more than double the decline during the preceding 40 years.

D. The Fertility of the Urban and Rural Native White Populations

Our data now become even more limited, relating only to the latter half of each decade from 1885-89 on. Estimates published by the National Resources Committee [64] for 1905-9 through 1925-29 have been carried back two additional decades. A constant 5 per cent adjustment by the NRC for underenumeration of children under five years has been accepted here, in part because no basis for a differential rural-urban adjustment was readily available, and in part because the analysis rests primarily on the figures for the more reliable censuses from 1900 on. Our immediate interest is in the pattern through 1925-29, and estimates for the native white population by rural-urban residence are only available to this point. To fill out the picture since then, however, we have added overlap figures for the total white population for 1925-29 on, an approximation which seems reasonable in view of the much diminished importance of the foreign-born in recent years.

As is clear from the curve for the total native white group in Figure 4, compared with that in Figure 3, the timing of the Kuznets cycles before 1925-29 is such that omission of the observations for the first half of each decade tends to conceal the long swings. Nevertheless, some significant points stand out. As the upper panel shows, the decline from 1885-89 to 1925-29 in fertility of the total native white population was

¹² "The decrease in fertility of foreign-born white women was perhaps the outstanding feature of the decline in the birth rate during the twenties" [65, p. 127].

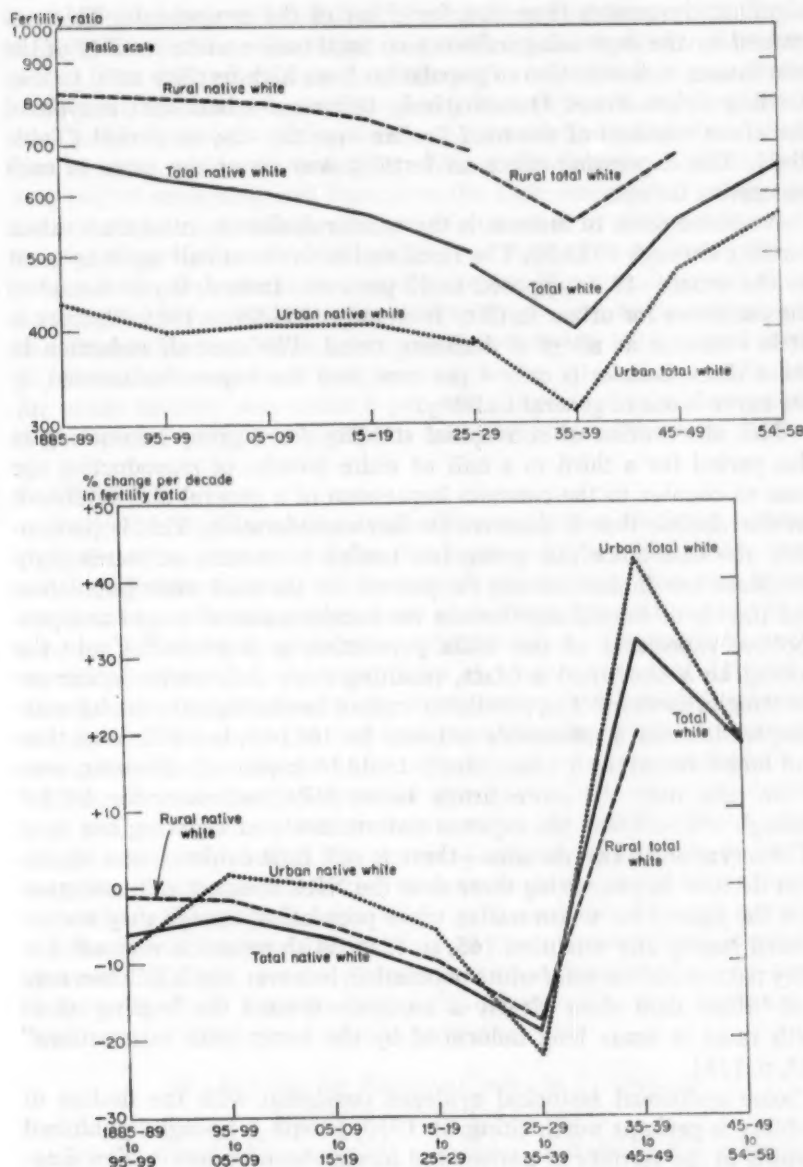


FIGURE 4. LEVEL AND RATE OF CHANGE, FERTILITY RATIO OF NATIVE WHITE POPULATION, 1885-89/1925-29, AND TOTAL WHITE POPULATION, 1925-29/1954-58, BY RURAL-URBAN RESIDENCE

Source: Table A-4

significantly greater than that for either of the components. This was caused by the depressing influence on total native white fertility of the continuous redistribution of population from high-fertility rural to low-fertility urban areas. Quantitatively this rural-urban shift accounted for about one-half of the total decline over the 40-year period (Table B-2). The depressing effect on fertility was about the same in each successive decade.

A second point of interest is the greater decline in rural than urban fertility through 1925-29. The rural decline is about half again as great as the urban—18 as opposed to 12 per cent. Indeed, if one considers the estimates for urban fertility from only 1895-99 to 1925-29, there is little evidence at all of a declining trend. The over-all reduction in these three decades is only 4 per cent, and the impression created by the curve is one of general stability.

This observation of substantial stability for a group accounting in this period for a third to a half of white females of reproductive age runs so counter to the common impression of a general and persistent secular decline that it deserves further consideration. This is particularly the case since this group has tended to assume an increasingly dominant role in determining the pattern for the total white population and thus is of central significance for consideration of recent and prospective experience of the white population as a whole.¹³ Could the finding be a statistical artifact, resulting from deficiencies in our estimating procedure? The possibility cannot be discounted—we have attempted to make a reasonable estimate for 1895-99, but with more time and larger resources it undoubtedly could be improved. However, even if we take only the more firmly based NRC estimates for 1905-9 through 1925-29—at the expense unfortunately of reducing our span of observation to two decades—there is still little evidence of a significant decline. In presenting these data the NRC does not call into question the figures for urban native white population, though they are accorded hardly any attention [65, p. 127]. With regard to regional fertility patterns of the *total* white population, however, the NRC does note that “these data show clearly a tendency toward the leveling off of birth rates in areas long influenced by the lower birth rate pattern” [65, p. 123].

Some additional historical evidence consistent with the finding of stability is perhaps worth citing. In 1930, Joseph J. Spengler published a study of the fertility of native- and foreign-born women in New Eng-

¹³ Readers may be reminded in this connection of the finding in Dorothy S. Thomas' pioneering study of Sweden [44] that during the 19th century *short term* fluctuations in fertility of the total population were initially dominated by fluctuations in agriculture, but subsequently by those in industry.

land, in which he concluded that "during the period between 1860 and 1915 no definite trend appeared in the native fertility rates" [38, p. 34]. For the period from 1915 through 1925 (the last year of the study), he found an upward tendency in fertility. Here, then, is an area in the forefront of the process of urbanization and industrialization in which native white fertility did not significantly decline over a long period stretching well back into the 19th century.¹⁴ The appearance of a similar pattern for the nation as a whole at a later date would clearly be consistent with this earlier New England experience.

One final point should be noted regarding Figure 4. The decline of total native white fertility in the 1920's is now seen to be owing more to a decrease in rural than urban fertility. Between 1915-19 and 1925-29, the reduction in rural fertility was close to 10 per cent, while that for urban fertility was under 6 per cent. Thus further understanding of this period calls particularly for an explanation of the rural decline.

E. Summary

While the fertility of the total white population declined substantially from the latter part of the 19th century to the mid-'thirties, there was significant variation in the rate of change over time and among component population groups. Even after averaging data so as to eliminate or substantially reduce variability due to the business cycle, marked fluctuations—Kuznets cycles of 15 or more years duration—stand out in the patterns for the total, native, and foreign-born white populations. Moreover, in the first three decades of this century the over-all decline in total white fertility was owing almost exclusively to declines for the foreign-born white and rural native white populations and to the shift from rural to urban areas; the fertility of the urban native white population, the group of central importance in understanding recent and prospective movements in the aggregate, remained virtually unchanged. Considerations such as these raise the question whether the baby boom, rather than an abrupt reversal in a long-term down-trend, might not be at least in part a Kuznets cycle of much larger magnitude than heretofore. To answer this, it is necessary to look into possible reasons for these movements.

II. Reasons for Kuznets Cycles in Fertility of Different Population Groups

Briefly stated, the analytical viewpoint underlying the subsequent discussion is this: variations in the fertility of a given population group

¹⁴ A recent re-examination by Robert Gutman [17] of the reliability of the Massachusetts birth registration data used by Spengler, while arriving at a somewhat different evaluation from Spengler, does not upset this finding.

are caused primarily by changes in two classes of factors—economic condition and demographic composition. The “group” for which these factors should be studied comprises those in the family-building ages. Broadly, this embraces those aged 15-44 years, but for some purposes particular attention should be paid to the younger members, those aged, say 20-29, where so many decisions regarding marriage and childbearing are concentrated. “Economic condition” refers to the employment and income experience of the group. Ideally, “income” here would embrace all sources, including even interpersonal transfers from other age groups, though in the following discussion attention is concentrated on the chief source, labor income. “Demographic composition” refers to the distribution of the group according to characteristics such as age, sex, nationality, and parentage. A change in demographic composition may itself stem basically from economic forces, for example, a change in age composition of the foreign-born due to a rise in immigration, but it is nevertheless useful to distinguish the different channels through which these forces operate. Both economic condition and demographic composition may affect the over-all fertility of a population group by influencing either marriage behavior, marital fertility, or both. No consistent effort is made here to distinguish the role of these two components in over-all fertility change, though it would be of interest in a fuller treatment.¹⁵

The analysis below for the foreign-born takes up only compositional factors, while those for the two native-born groups concentrate on economic condition. It would have been of interest to examine, where possible, the influence of economic factors on foreign-born fertility in so far as they exert effects other than through compositional change, and of changes in demographic composition on native-born fertility, especially those associated with rural-urban migration.¹⁶ In the present discussion, however, we have not attempted an exhaustive analysis, but have

¹⁵ This brief statement of analytical viewpoint is intended merely to highlight the determinants studied here. Among other possibly important factors are variations in the competitive situation of children in the consumers' scale of preference associated, e.g., with the introduction of new consumer durables or a change in the net income which children add to the family (see Joseph S. Davis [9, pp. 56-58] and Gary S. Becker [70, pp. 209-311]; changes in the availability of credit resources; and shifts in techniques and knowledge of birth control). Mention should also be made of a stimulating paper by Moses Abramovitz [2, pp. 158-79] which touches on some of the longer-term forces shaping contemporary attitudes toward fertility.

¹⁶ A cursory look at the available data on compositional aspects of the native white rural and urban populations suggests that they exhibit much less decade-to-decade variability than the foreign-born white. See the 1890-1930 figures in Thompson and Whelpton [45, Tables 41 and 56, and App. Tables 17, 23, and 27]. While there are some excellent recent general studies on U.S. population [6] [41], it is unfortunate that there is nothing that continues this remarkable study to the present in its full analytical depth.

singled out those factors which seemed on the basis of our initial investigation to throw significant light on the Kuznets cycles shown by each group.

A. Foreign-Born White Fertility

As populations go, the foreign-born is an unusual one—primarily because the source of its growth is immigration rather than births.¹⁷ One result of this is a very atypical age distribution. Unlike the usual age distribution of a growing population, where the numbers tend to fall progressively with each older age group, that of the foreign-born shows a concentration in the middle age groups with relatively small numbers at the extremes, at least as long as immigration remains high [45, p. 144]. Moreover, not only are the additions to this population fed in at relatively advanced ages—the “prime” working ages—but there is a significant disproportion between the sexes, with males noticeably predominating. Finally, given wide swings in immigration, such as have occurred in this country, the relative size even of adjoining age-sex groups can fluctuate widely in as short a period as a decade.

These considerations explain our starting with demographic composition in seeking clues to the variations in the rate of change of foreign-born fertility. Our immediate point of departure in studying these movements, particularly the very steep decline in the 1920's was the observation that the proportion of young foreign-born women who were married dropped sharply from 1920 to 1930, as is shown by the following figures:

Age at Specified Date	Per Cent Married	
	1920	1930
20-24	61.6	47.5
25-29	81.6	75.9

Why, one may ask, should such an abrupt decline occur? The chance of a foreign-born white woman aged 20-24 by 1920 being married was almost two in three, but if she reached this age group only one decade later, the likelihood had declined to less than one in two.

An obvious hypothesis, stemming from the observation that the marriage proportion for young foreign-born *men* remained almost constant over the decade, is that the demand for women to marry dropped off

¹⁷ Children born to foreign-born women after immigration are, of course, classified as native-born.

because of a decline in the relative number of males in the market [25] [46]. In testing this, however, one must recognize that the relevant ratio is not that of males to females in a given age group, the standard sex ratio, since, as is well known, men typically marry at a later age than women. For example, in the period 1890-1930, at least 45 per cent of foreign-born white women were married by the time they were 20-24, but for foreign-born white men this proportion was not attained until ages 25-29 had been reached [45, p. 395]. In attempting to explain the marriage proportion for foreign-born white women aged 20-29, therefore, the ratio of foreign-born white males aged 25-34 to females aged 20-29 was computed.¹⁸

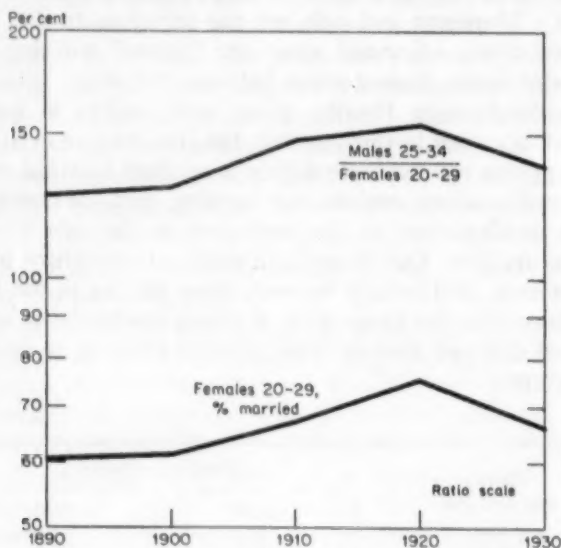


FIGURE 5. FOREIGN-BORN WHITE POPULATION, RATIO OF MALES AGED 25-34 TO FEMALES AGED 20-29, AND PER CENT OF LATTER MARRIED, 1890-1930

Source: Table A-5

The relevant series are plotted in Figure 5 for the decennial census dates 1890-1930. The close similarity between the patterns traced by the two curves—a similarity which would not appear if the standard sex ratio for those aged 20-29 were used—is impressive. Apparently, the marital experience of young foreign-born white females did depend

¹⁸ The analysis implies of course that native-born men did not constitute a particularly important source of demand for foreign-born women. This assumption seems consistent with the facts; in 1920 the proportion of foreign-born mothers whose husbands were native-born was less than one in six [56, p. 232].

very considerably on the gyrations of our rather unorthodox sex ratio, which in turn arose from the impact of both earlier and current immigration on the age-sex structure of the foreign-born population.¹⁹

In Figure 6, this line of reasoning is pushed a step further. Here, at five-year intervals, the series for foreign-born white fertility and our marriage-relevant sex ratio (the two solid lines) are compared, the latter being used in the absence of direct observations on the marriage proportion at mid-census dates. As the lower panel shows, while the movements in the rates of change of the two series are not perfectly consistent, there is a noticeable similarity. Both series show two trough-to-trough swings with the dates of peaks and troughs close, if not identical. This suggests that at least one element responsible for Kuznets cycles in the rate of change of foreign-born fertility was the changing proportion of males aged 25-34 to females aged 20-29 and the consequent effect of this on the marriage proportion.

The broken line in the figure brings out a second demographic feature of the foreign-born population that may have contributed to the fertility swings, namely, the proportion of women aged 20-44 in prime reproductive ages, conceived here as encompassing ages 20-34. Here too there is a suggestion of two trough-to-trough swings with reasonably consistent timing, though the amplitude of the movements is somewhat smaller for this series. However, in the beginning of the period (for which the estimates are probably less reliable), the timing relationships are somewhat off.

This brief discussion of Kuznets cycles in the rate of change of foreign-born white fertility is designed to be exploratory rather than definitive, and enough has perhaps been said to provide some support for the view that shifts in demographic composition of the foreign-born associated with the changing impact of immigration were at least in part responsible for these movements. Even if one accepts this suggestion, however, there remain some troublesome discrepancies. One—of particular interest in the present analysis—is that in the latter part of the period considered here, the decline in the rate of change of fertility was somewhat greater than one would have expected on the basis of the two factors so far discussed. One possible explanation, suggested in several sources, and consistent with the emphasis here on compositional changes in the population, is an abrupt decline in the proportion of foreign-born women in the prime reproductive ages who came from the high-fertility countries of southern and eastern Europe. There is

¹⁹ An interesting by-product of the sharp decline in the marriage-relevant sex ratio during the 'twenties, and the corresponding reduction in the proportion of foreign-born white females aged 20-24 who were married, was an abrupt rise in the labor-force participation of this group from 37.6 to 50.1 per cent [33, Table A-4].

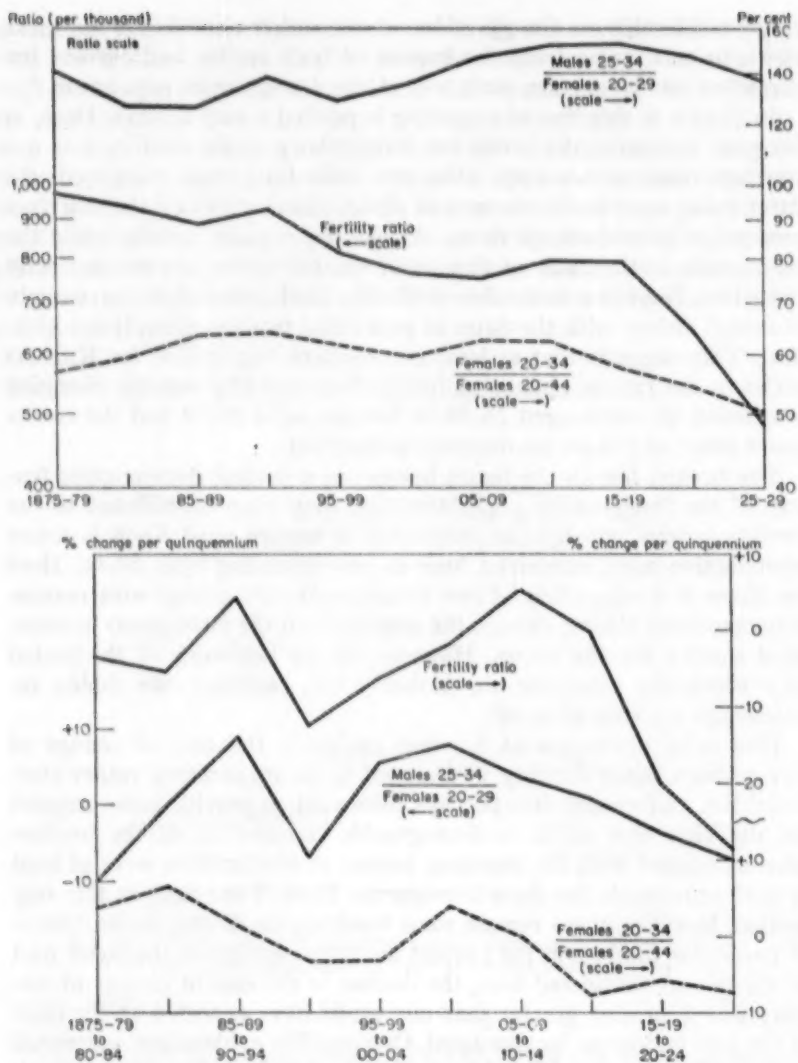


FIGURE 6. FOREIGN-BORN WHITE POPULATION, LEVEL AND RATE OF CHANGE OF FERTILITY RATIO, AND OF RATIO OF MALES 25-34 TO FEMALES 20-29 AND FEMALES 20-34 TO FEMALES 20-44, 1875-79/1925-29

Source: Table A-6

substantial evidence that female immigrants from this area typically had significantly higher fertility than contemporaneous immigrants from northern and western Europe [57, pp. 4, 10] [69] [16, p. 108]. Clearly, a sudden drop in the share of young foreign-born women from this source would tend to depress fertility.

Direct evidence to test this proposition is not available since, during the period with which we are concerned, the census did not regularly publish age detail for the foreign-born by country of origin. However, it seems possible to form a rough impression of the validity of the argument. In the period 1890-1915, about two-thirds of all female immigrants came from southern and eastern Europe; in 1915-30, about one-third. We have attempted to estimate, therefore, for foreign-born women aged 20-34 at each of several dates, the proportion who had immigrated between 1890 and 1915, the peak period of the "new immigration."²⁰ The results are as follows: 1900 = 45, 1910 = 82, 1920 = 86, 1930 = 48. The figures clearly suggest a drastic decline during the 'twenties in the share of young foreign-born women accounted for by the new immigration,²¹ and thus appear consistent with the suggestion that the decline in the rate of change of foreign-born fertility during this decade, attributable in part to the demographic shifts previously noted, was aggravated by this factor.

B. Rural White Fertility

The explanation investigated here for Kuznets cycles in rural fertility is a simple one; namely, that the rate of change of rural fertility varies directly with that in the economic condition of the farm population in family-building ages, approximated here by real farm income per head of the farm population (or labor force) as a whole. If the rate of growth of real farm income per head drops off, the rate of change of farm fertility would be expected to decline (algebraically). The converse is true if the rate of farm income growth increases.

The analysis comprises two parts, one for 1885-89 through 1925-29 based on observations at decennial intervals; and one, employing averages at quinquennial intervals, for 1920-24 through 1954-58. In

²⁰ The technique for 1930, for example, was to compare the number of survivors from the group of foreign-born women aged 5-19 in 1915, estimated by appropriate survival rates from [31, p. 23], with the number aged 20-34 enumerated in 1930.

²¹ Thompson and Whelpton draw an opposite conclusion, namely, that the share accounted for by the new immigration rose slightly during the decade and thus could not have contributed to the fertility decline [45, pp. 271-72]. The procedure they use to infer the share of the new immigration, however, rests primarily on figures for foreign-born women of all ages, and fails to take account of the fact that the major shift in national origins of immigration in the 'twenties particularly affected the younger foreign-born age groups, those central to the explanation of fertility.

the first part of the analysis, we use fertility data for the total rural white rather than native rural white population, since the earlier estimates for the former are probably somewhat more reliable for the present purpose and the bias introduced by the inclusion of the relatively unimportant foreign-born group in the rural total is probably fairly small. This series is compared with five-year averages of real gross farm income per person engaged in farming. The dates chosen for the latter allow for a lead of one to one and a half years over the fertility series. In the second part of the analysis, annual estimates of the birth rate for the total farm population (white plus nonwhite), converted to five-year averages for the first and second half of each decade, are compared with real net farm income per head of farm population, again with allowance for a lead of the former over the latter.²² Both the quinquennial and decennial farm income series are deflated by an index chosen to approximate the cost of living to farmers. The series are plotted in the upper panel of Figure 7, and the percentage change, our particular interest, in the lower.

By and large, as the lower panel shows, the data seem reasonably consistent with the hypothesis—at least as consistent as one might hope given the shortcomings of the data and the inevitable limitations of any monocausal explanation. Swings in the rate of growth of real farm income per head or per worker appear to be matched fairly closely by swings in the rate of growth of rural fertility. Reference to the adjoining scales will show that the magnitude of the income swings is substantially greater than that of fertility. This might be interpreted as suggesting an elasticity noticeably under one, a result which seems consistent with the findings of similar business cycle analyses.²³

If this reasoning is accepted, then the historical course of rural fertility change in this century would be conceived as reflecting in significant measure the pattern of major surge and relapse which has characterized farm income growth. The accelerated rate of decline of farm fertility in the 'twenties and early 'thirties would be attributed to the drastic setback to the growth of farm income in the period following the First World War, a decline so great that the absolute level itself was substantially reduced. The subsequent baby boom in rural areas would be explained by the corresponding resurgence in farm income growth in the late 'thirties and 'forties associated particularly with the war and postwar booms. And finally, the decline in the rate

²² The shift to the farm birth rate series is due in part to statistical convenience, but more fundamentally to the fact that the connection between "rural" fertility and farm income becomes progressively more tenuous as the rural nonfarm population grows.

²³ Cf. the studies of Gary S. Becker [70, pp. 209-31], Dorothy S. Thomas [15] [43], Dudley Kirk [70, pp. 241-57] [48, pp. 84-85].

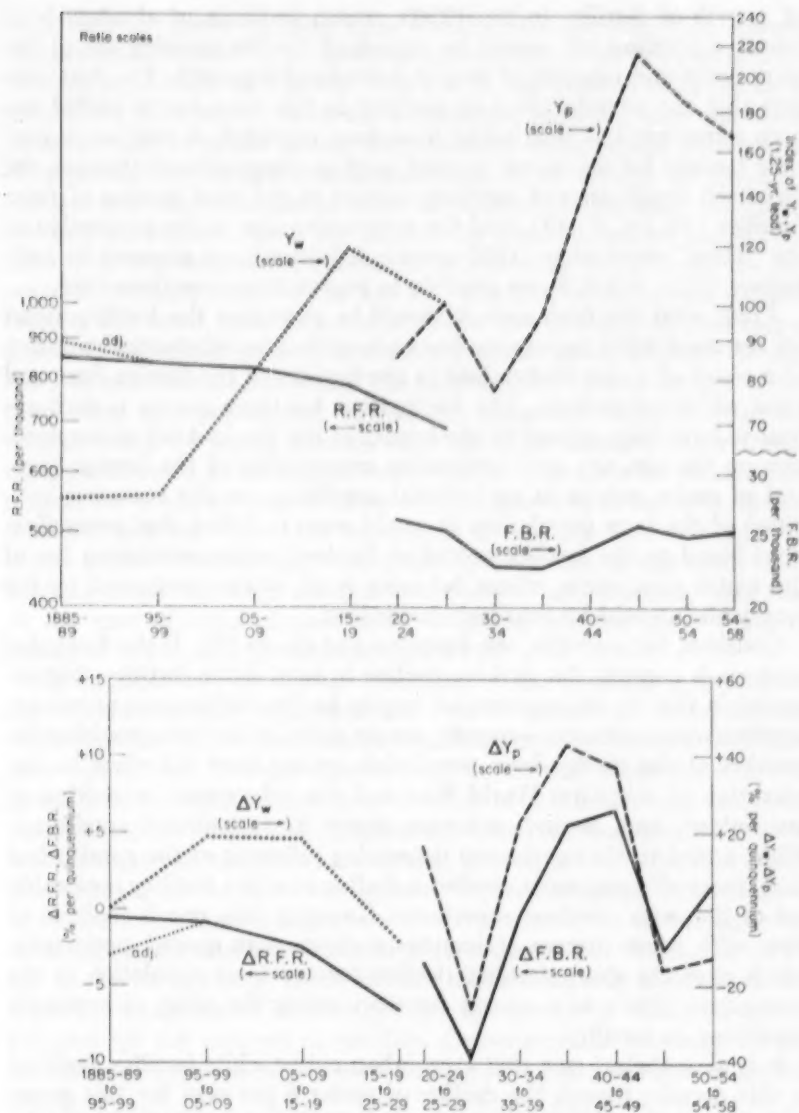


FIGURE 7. LEVEL AND RATE OF CHANGE OF RURAL WHITE FERTILITY RATIO (R.F.R.) AND REAL GROSS FARM INCOME PER ENGAGED (Y_w), 1885-89/1925-29, AND OF FARM BIRTH RATE (F.B.R.) AND REAL NET FARM INCOME PER HEAD (Y_p), 1920-24/1954-58

Source: Tables A-7a and A-7b.

of growth of fertility in the 1950's, which in terms of absolute level meant a leveling off, would be explained by the tapering off of the farm boom and substantial drop in farm-income growth. The data suggest that the adverse effect on fertility in this most recent period has been somewhat less than might have been expected. A number of possible reasons for this come to mind, such as compositional changes, the increased significance of nonfarm sources in the total income of farm families [40, pp. 48-49], and the progressive rise in the proportion of the "farm" population (1950 census definition) not engaged in agriculture [61]; but it is not possible to pursue these questions here.

From what has been said, it should be clear that the fertility trend for the *total* white population has been subject to substantial variation as a result of major fluctuations in the fertility of the foreign-born and rural white components. The fluctuations for these groups in turn appear to have been caused by the impact of the rise and fall of immigration on the age, sex, and nationality composition of the foreign-born, and of major swings in agricultural conditions on the economic condition of the farm population. It would seem to follow that generalizations based on the fertility record of the total white population (or of the entire population, whose behavior is of course dominated by the total white) would be extremely hazardous.

Consider, for example, the experience of the 1920's. If the foregoing analysis is correct, the striking decline in total white fertility that occurred in this decade was caused largely by the conjuncture of two exceptional circumstances—namely, major shifts in the demographic composition of the foreign-born population arising from the effect on immigration of the First World War and the subsequent imposition of restrictions, and, second, a major slump in agricultural conditions. When added to the continuous depressing influence of the rural-urban shift, these circumstances created a decline in white fertility noticeably out of line with previous experience. Knowing this, one is inclined to view with some reserve statements such as that quoted previously, which cites the sharp fertility decline for the *total* population in the prosperous 1920's as a reason for discounting the effect of economic conditions on fertility.

It is nevertheless true that even urban native white fertility declined in this decade, though the decline of under 6 per cent for this group is rather less impressive than the almost 20 per cent decline for the white population as a whole. It is time, therefore, to see what might explain the fertility pattern for this group.

C. Urban Native White Fertility

As in the rural analysis, the aim here is to explore the relation between Kuznets cycles in fertility and in the economic condition of the

population of family-building ages. For the rural population, it seemed reasonable to assume that the economic experience of those in family-building ages could be inferred from the income experience of the farm population as a whole. Such an assumption, however, does not seem plausible for the urban group, with its much more varied distribution of industrial and occupational attachments. In the absence of direct information on the situation of those in family-building ages, therefore, we have attempted to infer the state of the labor market for young persons from two indicators, conceived as reflecting respectively the demand and supply sides of the market. The first is the unemployment rate for the labor force as a whole. A low rate is taken as reflecting a generally favorable state of demand for labor, young and old; a high rate, an unfavorable situation. The second is the rate of change of the total white male population, aged 20-29, taken as a crude index of the rate of entry of young persons into the labor market. Other things equal, a decrease in the rate of entry would make for a favorable labor market for young persons because of their scarcity; an increase, an unfavorable market. Thus the hypothesis is that the rate of change of urban native white fertility varies directly with that of aggregate labor demand (read "inverted unemployment rate") and inversely with that of the rate of labor market entry of young persons (read "rate of change of white male population, aged 20-29").²⁴

An example may clarify the reasoning. If the economy is experiencing a Kuznets-cycle expansion, the rate of growth of labor demand would increase, and, other things remaining unchanged, one would expect this to lead, through its effect on income and employment conditions, to a favorable response in fertility of the native population by encouraging marriage and childbearing. However, under conditions of free immigration, the increased rate of growth of labor demand would also provoke an influx of immigrants. The resulting rise in the rate of additions to the labor market would tend to counteract the tendency toward tightening and thus offset in some measure the stimulus to fertility of the native-born. Note, in this connection, that immigrants are typically concentrated in exactly those age groups in which we are interested for the analysis of fertility. Conversely the tendency toward an adverse impact on native-born fertility of a decreased rate of growth

²⁴ Although the view that variations in the general unemployment rate primarily reflect changes in aggregate demand seems most consistent with formal theory, it is not essential to the analysis. Alternatively, one might think of movements in the general unemployment rate as indicating the average course of employment conditions, and the net outcome of aggregate demand and supply, and changes in the rate of entry as indicating variations in the deviation from the average of the situation for young persons. However, the fact that for most of the period covered here a rise in the rate of entry accompanied a reduction in unemployment seems consistent with the emphasis on aggregate demand (Table A-8, cols. 2, 3).

of labor demand during a Kuznets-cycle contraction would be moderated by a decrease in the rate of immigration. Thus Kuznets cycles in the rate of change of labor demand would tend to be compensated by swings in the rate of entry into the labor market owing to immigration, and the consequent impact on native-born fertility would be counteracted in some degree.²⁵

Figure 8 presents the relevant series; as before, the upper panel shows the levels of the variables, the lower, their rates of change. To facilitate inferences from the graph, the curve for each of the explanatory variables has been plotted inverted so that an upward movement would be expected to cause an upward movement in the fertility curve, other things remaining unchanged.

If we first consider variations in the decade rates of change through 1935-39, the most interesting feature is the inverse movements of the two explanatory series. As the lower panel shows, whenever the rate of growth of aggregate labor demand (the lower solid line) moves in a way favorable to fertility, the change in the rate of entry of young persons into the labor market (the broken line) moves adversely, and vice versa. In the early part of the period the swing in supply conditions reflects chiefly movements in immigration—exactly the situation described in the example above. Later, the supply movement reflects primarily variations arising from demographic sources. For example, the increase in the decade 1915-19/1925-29 over the preceding decade reflects an exceptional rise in the rate of increase of native white males aged 20-29, which traces in turn to a corresponding movement in the total white birth rate earlier in the century.

So far as directions of movement of the explanatory series during this period are concerned, therefore, they carry no clear implication regarding the expected behavior of the rate of change of fertility—a plus in one is accompanied by a minus in the other. And, indeed, the fertility curve fails to exhibit the fluctuations of either of the two explanatory series. Rather, one finds simply one extended swing from the beginning of the period through 1925-29/1935-39. The 'twenties, with a relatively small decline in the rate of change of fertility, form a consistent part of this picture, a favorable movement in demand conditions being offset by an adverse one in supply. Interestingly, if one were to smooth out fluctuations in the two explanatory curves by, say, a simple two-item moving average, both, and particularly the unemployment rate, would show an extended swing rather similar to that of

²⁵ Some may note a similarity between this reasoning and Francis Walker's analysis emphasizing the adverse influence of immigration on the fertility of the native population [71] [72]. Walker, however, was concerned with the primary trend, whereas the present analysis refers only to Kuznets cycles, and in addition takes account of the stimulating influence to native fertility of the very conditions which encourage a rise in immigration.

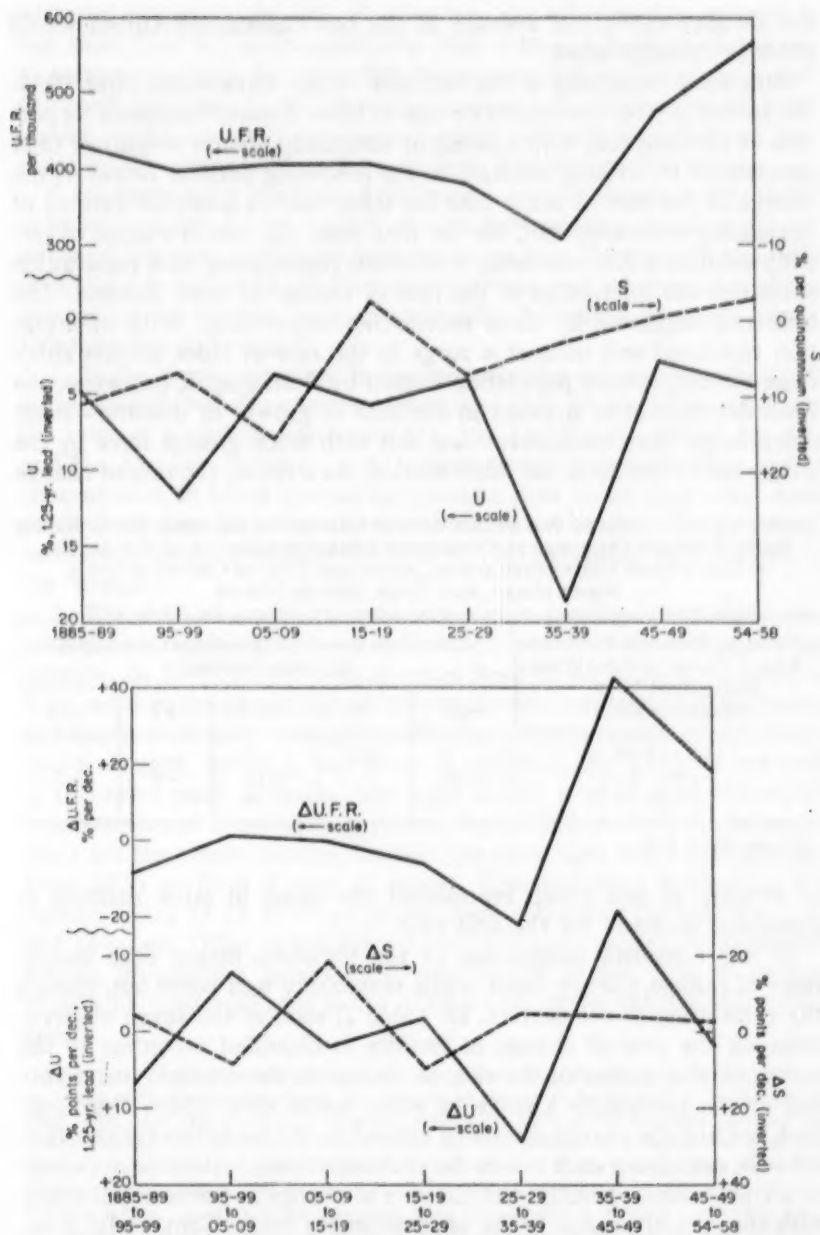


FIGURE 8. LEVEL AND RATE OF CHANGE OF URBAN NATIVE WHITE FERTILITY RATIO (U.F.R.),* UNEMPLOYMENT RATE OF CIVILIAN LABOR FORCE (U), AND RATE OF CHANGE OF TOTAL WHITE MALE POPULATION 20-29 (S), 1885-89/1954-58

Source: Table A-8

* Total white, 1925-29.

the fertility curve. An average of the two explanatory curves would produce the same effect.

Still more intriguing is the behavior of the three series after 1935-39. In this period, the rate of change of labor demand continues its pattern of rise and fall, with a swing of noticeably greater amplitude than previously. In striking contrast to the preceding pattern, however, the change in the rate of entry into the labor market levels off instead of fluctuating inversely. And, for the first time, the rate of change of fertility exhibits a Kuznets-cycle movement, reproducing with remarkable similarity the fluctuation in the rate of change of labor demand. The inference suggested by these movements seems clear. With immigration restricted and without a surge in the rate of labor market entry from the native-born population caused by demographic processes, the favorable impact of a swing in the rate of growth of demand—itsself much larger than heretofore—was felt with much greater force by the young native whites in the labor market. As a result, the rate of change

TABLE 2—OBSERVATIONS ON PERCENTAGE RATE OF CHANGE PER DECADE IN URBAN NATIVE WHITE FERTILITY CLASSIFIED BY CONCURRENT CHANGE PER DECADE IN PERCENTAGE OF LABOR FORCE UNEMPLOYED AND IN PERCENTAGE RATE OF CHANGE OF TOTAL WHITE MALES, AGED 20-29, 1885-89/1954-58

Change per Decade in Percentage Rate of Change of Total White Males, Aged 20-29 (percentage points)	Change per Decade in Percentage Unemployed (percentage points)				
	-16	-8	-2 to +2	+7	+14
+8 to +10			-6		
-2 to -5	+42	+2	+18	-8	-22
-18			0		

Source: Table A-8.

of fertility of this group reproduced the swing in labor demand in significant measure for the first time.

If one considers magnitudes of the variables rather than simply rates of change, the argument seems reasonably well borne out, though the correlation is not perfect. In Table 2, each of the seven observations on the rate of change in fertility is classified according to the accompanying values of the rate of change in the unemployment rate and in the percentage change in white males aged 20-29. One finds that, holding the change in rate of entry into the labor market constant (that is, examining each row in the table separately), the rate of change of fertility varies directly with the rate of change in demand (inversely with the rate of change in the unemployment rate). Conversely, holding demand conditions constant (examining each column separately), there is a tendency for the rate of change of fertility to vary inversely

with the change in the rate of entry into the labor market, though in this case there is one inconsistency (the +18 and 0 entries being out of order vertically). Whether this discrepancy primarily reflects a fundamental deficiency in the analytical scheme or an inadequate approximation to the economic condition of those of family-building age provided by the explanatory series used here, it is not possible to say.

A comprehensive measure of the income and employment experience of young persons for the period covered here remains tantalizingly out of reach. Yet such additional evidence as we have been able to assemble supports the view that the income experience and labor market situation of young persons were exceptionally favorable in recent years. Consider the following:²⁶

1. In the 'forties, earnings in the lower-income occupations rose much more rapidly than those in the higher, and then, in the 'fifties, at about the same or a slightly lower rate [51, No. 33 (Jan. 15, 1960), pp. 6-7, and No. 35 (Jan. 5, 1961), p. 52]. Since young people are more highly concentrated in lower-income occupations than older, they must have particularly benefited from the movement of the 'forties. The very fragmentary evidence available suggests no corresponding development in the 'twenties.

2. The shift of young persons into higher earning occupations proceeded at a much higher rate in the 'forties than in the two preceding decades. In 1940, 17 per cent of males aged 15-24 in nonfarm occupations were in the three highest income classes (professional, technical, and kindred workers; managers, officials, and proprietors, except farm; and craftsmen, foremen, and kindred workers). By 1950, 41 per cent of this same group of males (now aged 25-34) were in these classes, an improvement of 24 percentage points. From 1920 to 1930, the improvement for the cohort moving through the same ages was 17 points, and from 1930 to 1940 it was 12 points. Corresponding figures for the cohorts aging 25-34 to 35-44 in the three successive decades are 7, 4, and 14 points. Other things being equal, this more rapid shift to higher-income occupations points to a significantly higher rate of income growth for young persons in the 'forties than in the two preceding decades.²⁷

²⁶ In the examples cited, the typical movement from the 'thirties through the 'fifties is consistent with the pattern shown by the rate of change of fertility—that is, the abrupt break with past experience, in a direction reflecting a particularly favorable situation for young persons, occurs between the 'thirties and the 'forties. The movement from the 'forties to the 'fifties suggests a slowing or even reversal of the process. It is likely that between the first and second halves of the 'fifties this pattern would be still more apparent.

²⁷ The figures for 1930-50 are computed from [22, Appendix Table 1]; for 1920, from unpublished estimates comparable to [22] kindly provided by W. Lee Hansen. Data for armed forces as reported in the census were included with the 1940 and 1950 figures. I am indebted to Adrian Throop for assistance in assembling these figures.

3. Expansion of government transfer payments provided a new bulwark to income in the 'forties and 'fifties, especially in the form of veterans benefits and unemployment compensation for younger persons.

4. Labor-force participation rates in the 'forties showed a marked break with previous trends in a manner strongly suggesting a shortage of young workers. The sharp downtrend in participation of white males aged 14-19 which had prevailed since 1900 was completely reversed. A similar movement appears even to have characterized those aged 10-13 [31, pp. 364-67]. The long-term rise in labor-force participation of older women was greatly accelerated because jobs that would ordinarily have been filled by young persons were left open. And while, for young women as a whole, labor-force participation declined slightly as a larger proportion married and had children, the rates for wives, even those with preschool-age children, rose substantially. Finally, while it is not possible to cite figures on the long-term trend, part-time employment rose substantially after 1940, and it seems likely that this too stemmed at least in part from a shortage of young workers. In the 'fifties the rise in labor-force participation of older women continued virtually unabated, but the rate for those aged 14-19 resumed its long-term decline.²⁸

5. Since 1940, home ownership among young persons has risen to levels markedly higher than had previously prevailed. The following figures for nonfarm household heads show, for each age group, the percentage of dwelling units which were owner-occupied at each date:²⁹

Age	1890	1900	1930	1940	1949	1959
15-24	14	10	11	12	21	16
25-34	24	21	26	22	35	42
35-44	35	34	44	37	53	63

There is a marked advance in the situation of young persons after 1940, part of which must be due not only to a great increase in credit availability but to a substantially improved income position as well which encouraged taking on long-term commitments.

²⁸ The evidence cited in this paragraph is from the excellent census monograph by Gertrude Bancroft [5, pp. 29-31, 58, 77-82, and Ch. 4]. Further analysis of some of these developments is planned as part of a study by the present writer on long swings in American labor-force growth [12].

²⁹ The data through 1940 are from the census reports; for 1949 and 1959, from [21], p. 1107, Suppl. Table 1]. (Data for those aged 18-24 from the latter source were adjusted to 15-24 on the assumption that no heads of households under 18 own their own homes.) The 1930 and 1940 estimates are for male heads of household only, which biases them slightly upward compared to the figures for the other dates. The assistance of S. R. Lewis, Jr., in the preparation of these data is gratefully acknowledged.

6. Finally, there are the characteristics of the baby boom itself. A recent study [16] has shown that a major factor in the boom has been the significant decline since 1940 in age at marriage. From 1890 to 1940, age at marriage drifted irregularly downward, the decline in the median for all females amounting to only one-half year. In the next decade, a period one-fifth as long, the reduction was twice as great [55, Series A-229]. In addition, wives have had children much sooner after marriage. These two factors, earlier marriage and earlier childbearing, rather than mothers having substantially more children, accounted for most of the rise in the fertility rate through 1954 [16, pp. 365-71].⁸⁰ The central role of young families in the baby boom is obvious. It would be difficult indeed to account for this unless their income and employment experience had been exceptionally good.

III. *Conclusions and Possible Implications*

The most striking feature of the baby boom—and thus the one calling most urgently for explanation—is the apparent abrupt break with historical experience. However, reconciliation of present and past becomes easier when one recognizes that even before the 'forties the historical record was characterized by fluctuations of significant magnitude and duration, and that the record for the total white population is a composite of the varying experience of several component groups, subject in part to quite different influences. Major swings in agricultural conditions, on the one hand, and Kuznets cycles in nonagricultural activity with accompanying immigration fluctuations, on the other—each with their peculiar historical timing—gave rise to distinctive fertility responses on the part of the rural white, foreign-born white, and urban native white populations. When one unravels these differing strands of experience and considers their underlying influences, the impression emerges that the recent fertility behavior of the urban native white population, the group of central significance for explanation of the baby boom, is not as inconsistent with its earlier character as was heretofore believed. In the first three decades of the

⁸⁰ The draft law policy of deferring fathers doubtless encouraged earlier marriage and childbearing, but without an income situation that favored expansion of the family beyond the first child, it is doubtful that it could have produced a baby boom of the type experienced.

There is now reliable evidence that the average number of children per mother has also risen in the postwar period. This development is of course consistent with the analysis presented here. The longer the exceptional labor market situation prevails, the more likely the fertility response will take this form in addition to earlier marriage and earlier childbearing.

century, the fertility of this group, instead of exhibiting a declining trend, showed reasonable stability. And in the recent period the effect on the labor market of a Kuznets-cycle expansion—an expansion stronger, according to our data, than any preceding ones considered here—was for the first time not accompanied by an offsetting rise in the rate of labor-market entry due to a significant increase in either immigration or the native-born population in young working ages. The unprecedented concurrence of these three circumstances—a Kuznets-cycle expansion in the economy, restricted immigration, and a low rate of labor-force entry from the native population resulting from demographic processes—created an exceptional job market for those in family-building ages and as a result drastically accelerated the founding of families.³¹ This process was further abetted by a concurrent boom in agricultural conditions, which evoked a similar fertility response on the part of the rural white population.

In conclusion, some of the implications of the preceding analysis for the past and future may be set forth, as long as it is recognized that these remarks are largely speculative and offered primarily in the hope of stimulating further inquiry.

With regard to the past, it was noted earlier in the discussion that while Kuznets cycles in the rate of population growth are not a new

³¹ With regard to the causes of the exceptional labor market for young persons in the 'forties and 'fifties, W. Lee Hansen has brought to the writer's attention that the present paper emphasizes quantitative scarcity to the exclusion of relative quality. The following figures on median school years completed by young and middle-aged males at various dates may partially right the balance:

Age at Specified Date	1920	1930	1940	1950	1960	1970 (projected)
(1) 25-29	8.4	8.7	10.1	12.0	12.3	12.5
(2) 45-54	8.1	8.2	8.4	8.7	10.0	12.0
(3) (1)-(2)	0.3	0.5	1.7	3.3	2.3	0.5

Note the immense gain in the educational advantage of young over middle-aged workers in the 'forties, a change which sharply improved their competitive position at just the time that labor demand was booming. The timing is fortuitous, stemming from the abrupt advance in the diffusion of high-school education that occurred in the 'twenties and especially the 'thirties. (The figures are from [50, pp. 236, 238] and [52, pp. 6-7]. The 1920 and 1930 values were assumed the same as those reported by the corresponding cohorts in 1940, the first time that data on educational attainment were collected.)

The sequence of change in the educational differentials calls to mind the recent pronounced convergence in income distribution by size. One wonders to what extent the change in the size distribution in the past forty years may reflect changing income differentials by age associated with variations in both the relative number and quality of young workers.

phenomenon in our history, the shift in the source of these movements from immigration to fertility raises a question whether the recent cycle bears any logical connection to its predecessors. The implication of the present analysis is that indeed such a connection does exist. As long as we permitted free immigration, the rise and fall of immigration in response to swings in labor demand associated with Kuznets cycles in this country acted as a buffer to moderate the impact on the urban native white population. With the restriction of immigration, however, the urban native white population felt the impact of a Kuznets-cycle swing in labor demand with unprecedented force, and the result was an unparalleled response in fertility and thus again in the rate of population growth.

As for prediction of the shorter-term future, say, the decade of the 'sixties, the principal lesson of the analysis is the need for a detailed comparative study of the recent and prospective labor-market experience of those in family-building ages. The indirect indicators used here for inferring the labor-market conditions encountered by the young urban white population, so far as they are relevant, suggest one striking contrast with the recent past. The change in the rate of entry into the labor market (as gauged by predictions for the total male population aged 20-29), which has held remarkably steady in recent decades, will rise abruptly in a way unfavorable to continuation of the present rate of change of fertility, reflecting of course the upturn in the birth rate some twenty years ago. Indeed the prospective rise is unprecedented in the seven decades of experience covered here. Assuming no significant alteration in the rate of change of the unemployment rate—in other words, continuation of a reasonably high-level employment situation—a relative weakening in the exceptional labor market condition enjoyed by young persons in the recent past is implied, and a consequent adverse response in the fertility rate (though not necessarily in the *number* of births).²²

The historical analogue which suggests itself is the movement from 1915-19 to 1925-29, when with little change in the percentage unemployed a rise in the rate of labor market entry from around -2 to +8 per cent was accompanied by a fertility decline of 6 per cent (App. Table A-8). In the prospective situation, the rise in the rate of entry will be from around -2 to +20 per cent. However, a potentially significant offsetting compositional change will be the abrupt rise in the proportion of women of reproductive age in the more fertile ages, 20-29. After a fairly steady downward drift over the past half-century,

²² As the preceding footnote shows, the educational advantage of young over older workers will also change sharply in the 1960's in a direction unfavorable to continuation of the exceptional situation of the young.

this proportion (as projected for all classes of the population) will rise from a low or around 38 per cent in 1960 to about 50 per cent by 1975 [53, No. 187 (Nov. 10, 1958)]. To a significant extent, this change is of course the female counterpart of the rise in the rate of labor-market entry for males.

It is quite possible that our indicators may be inadequate for inferring the prospective labor-market experience of young persons; or conceivably there may be new compensating factors, such as a shift in composition of labor demand especially favorable to the young or a general acceleration in the rate of growth of the economy. Since 1957 there has been a slight decline in the fertility level, but it is as yet uncertain whether this may only be temporary [68, pp. 2-3]. In any event a detailed study of the labor market for young persons, past and prospective, is clearly needed.

The implications of the present analysis for the longer-term future of fertility change are in contrast with that likely to be suggested by the typical demographic discussion of our fertility history. Assuming a possible reduction in fertility in the 'sixties, the customary emphasis of demographers on the long-term secular decline in the past would suggest a view of this as a resumption of the primary trend.⁸⁸ The interpretation suggested by the present analysis, however, would be that for the group whose experience is of central significance for the future, the urban native white population, the nature of the primary trend in this century—whether upward or downward—is not readily apparent, and conceivably the recent behavior of this group may be explained at least in part in terms of the Kuznets-cycle conception of time-series change. If this is correct, and assuming continuation into the longer-term future of a reasonably high-level-employment economy, one might imagine a more or less self-generating mechanism, by which in one period a decline in the rate of labor-market entry causes a concurrent rise in the rate of change of fertility, and this in turn leads, with a lag of around two decades, to a rise in the rate of labor-market entry and a consequent decline in the rate of change of fertility. But this is just one hypothetical possibility. The fundamental point is that substantial fertility variation, up or down, may occur over the longer run.

⁸⁸ Clearly the present analysis suggests that a re-examination of the primary trend itself in terms of the differing patterns of the groups distinguished here might prove fruitful.

REFERENCES

1. M. ABRAMOVITZ, reports in Nat. Bur. Econ. Research, Thirty-seventh, Thirty-eighth, Thirty-ninth, and Fortieth Annual Reports. New York 1957-60.
2. ———, "Growing Up in an Affluent Society," in *The Nation's Children*, Vol. I, *The Family and Social Change*, edited by Eli Ginzberg. New York 1960.
3. ———, Statement in Hearings before the Joint Economic Committee, 86th Cong., 1st Sess., Pt. 2, *Historical and Comparative Rates of Production, Productivity, and Prices*. Washington 1959, pp. 411-66.
4. ———, "The Nature and Significance of Kuznets Cycles," *Economic Development and Cultural Change*, Apr. 1961, 9, 225-48.
5. G. BANCROFT, *The American Labor Force: Its Growth and Changing Composition*. New York 1958.
6. D. J. BOGUE, *The Population of the United States*. Glencoe 1959.
7. A. F. BURNS, *Production Trends in the United States since 1870*. New York 1934.
8. J. S. DAVIS, "Implications of Prospective United States Population Growth in the 1960's," *Milbank Memorial Fund Quart.*, Apr. 1961, 39, 329-49.
9. ———, *The Population Upsurge in the United States*, War-Peace Pamph. No. 12. Food Research Institute, Stanford University, 1949.
10. ———, "The Population Upsurge and the American Economy, 1945-80," *Jour. Pol. Econ.*, Oct. 1953, 61, 369-88.
11. R. A. EASTERLIN, "Influences in European Overseas Emigration before World War I," *Econ. Develop. and Cult. Change*, Apr. 1961, 9, 331-51.
12. ———, "Long Swings in the Growth of the American Labor Force." MS., Nat. Bur. Econ. Research.
13. R. FREEDMAN, P. K. WHELPTON, AND A. A. CAMPBELL, *Family Planning, Sterility, and Population Growth*. New York 1959.
14. E. FRICKEY, *Production in the United States, 1860-1914*. Cambridge 1947.
15. V. L. GALBRAITH AND D. S. THOMAS, "Birth Rates and the Interwar Business Cycles," *Jour. Am. Stat. Assoc.*, Dec. 1941, 36, 465-76.
16. W. H. GRABILL, C. V. KISER, AND P. K. WHELPTON, *The Fertility of American Women*. New York 1958.
17. R. GUTMAN, "The Birth Statistics of Massachusetts during the Nineteenth Century," *Population Stud.*, July 1956, 10, 69-94.
18. E. E. HAGEN, "Population and Economic Growth," *Am. Econ. Rev.*, June 1959, 49, 310-27.
19. A. H. HANSEN, "Economic Progress and Declining Population Growth," *Am. Econ. Rev.*, March 1939, 29, 1-15.
20. ———, *Fiscal Policy and Business Cycles*. New York 1941.
21. "Housing of Nonfarm Families," *Fed. Res. Bull.*, Sept. 1959, pp. 1097-1113.

22. A. J. JAFFE AND R. O. CARLETON, *Occupational Mobility in the United States, 1930-1960*. New York 1954.
23. J. W. KENDRICK, *Productivity Trends in the United States*. Princeton 1961.
24. J. M. KEYNES, "Some Economic Consequences of a Declining Population," *Eugenics Rev.*, Apr. 1937, 39, 13-17.
25. E. R. KRAMM AND D. S. THOMAS, "Rural and Urban Marriage in Relation to the Sex Ratio," *Rural Soc.*, Mar. 1942, 7, 33-39.
26. S. KUZNETS, "Quantitative Aspects of the Economic Growth of Nations. I. Levels and Variability of Rates of Growth," *Econ. Develop. and Cult. Change*, Oct. 1956, 5, 1-94.
27. ———, "Long Swings in the Growth of Population and in Related Economic Variables," *Proc. Am. Philos. Soc.*, Feb. 1958, 102, No. 1, pp. 25-52.
28. ———, *Capital in the American Economy: Its Formation and Financing*. Princeton 1961.
29. ——— AND E. RUBIN, *Immigration and the Foreign Born*, Nat. Bur. Econ. Research Occas. Paper 46. New York 1954.
30. S. LEBERGOTT, "Annual Estimates of Unemployment in the United States, 1900-1954," in Universities-Nat. Bur. Committee for Econ. Research, *The Measurement and Behavior of Unemployment*, Spec. Conf. 8. Princeton 1957.
31. E. S. LEE *et al.*, *Population Redistribution and Economic Growth, United States, 1870-1950*, Vol. I. Philadelphia 1957.
32. H. LEIBENSTEIN, *Economic Backwardness and Economic Growth*. New York 1957.
33. C. D. LONG, *The Labor Force under Changing Income and Employment*. Princeton 1958.
34. ———, "The Illusion of Wage Rigidity: Long and Short Cycles in Wages and Labor Costs," *Rev. Econ. Stat.*, May 1960, 42, 140-51.
35. R. C. O. MATTHEWS, *The Business Cycle*. Chicago 1959.
36. B. OKUN, *Trends in Birth Rates in the United States since 1870*. Baltimore 1958.
37. P. J. O'LEARY AND W. A. LEWIS, "Secular Swings in Production and Trade, 1870-1913," *Manchester School Econ. and Soc. Stud.*, May 1955, 23, 113-52.
38. J. J. SPENGLER, *The Fecundity of Native and Foreign-Born Women in New England*, Brookings Institution, Pamph. Ser., Vol. 2, No. 1. Washington 1930.
39. F. STRAUSS AND L. H. BEAN, *Gross Farm Income and Indices of Farm Production and Prices in the United States, 1869-1937*, Dept. Agric., Tech. Bull. 703. Washington 1940.
40. B. C. SWERLING, *Agriculture and Recent Economic Conditions*. Federal Reserve Bank of San Francisco 1959.
41. C. AND I. B. TAEUBER, *The Changing Population of the United States*. New York 1958.

42. B. THOMAS, *Migration and Economic Growth*. Cambridge 1954.
43. D. S. THOMAS, *Social Aspects of the Business Cycle*. New York 1925.
44. ———, *Social and Economic Aspects of Swedish Population Movements, 1750-1933*. New York 1941.
45. W. S. THOMPSON AND P. K. WHELPTON, *Population Trends in the United States*. New York 1933.
46. H. YUAN T'EN, "A Demographic Aspect of Interstate Variations in American Fertility, 1800-1860," *Milbank Mem. Fund Quart.*, Jan. 1959, 37, 49-59.
47. A. TOSTLEBE, *Capital in Agriculture: Its Formation and Financing since 1870*. Princeton 1957.
48. UNITED NATIONS, DEPARTMENT OF SOCIAL AFFAIRS, *The Determinants and Consequences of Population Trends*, Population Stud., No. 17. New York 1953.
49. U. S. BUREAU OF THE CENSUS, *Census of Population: 1950. Special Report P-E No. 3A. Nativity and Parentage*. Washington 1954.
50. ———, *Census of Population: 1950, U. S. Summary*, II. Washington 1954.
51. ———, *Current Population Reports: Consumer Income*, Ser. P-60.
52. ———, *Current Population Reports: Population Characteristics*, Ser. P-20.
53. ———, *Current Population Reports: Population Estimates*, Ser. P-25.
54. ———, *Forecasts of the Population of the United States 1945-1975*, by P. K. Whelpton, assisted by H. T. Eldridge and J. S. Siegel. Washington 1947.
55. ———, *Historical Statistics of the United States, Colonial Times to 1957*. Washington 1960.
56. ———, *Immigrants and Their Children, 1920*, by N. Carpenter, Census Monogr. VII. Washington 1927.
57. ———, *Ratio of Children to Women, 1920*, by W. S. Thompson, Census Monogr. XI. Washington 1931.
58. ———, *Statistical Abstract of the United States, 1960*. Washington 1960.
59. U. S. BUREAU OF LABOR STATISTICS, *Employment and Earnings*, Feb. 1961, 7.
60. U. S. DEPARTMENT OF AGRICULTURE, *Agricultural Statistics 1960*. Washington 1961.
61. ———, AGRICULTURAL MARKETING SERVICE, *Farm Population: Effect of Definition Changes in Size and Composition of the Rural Farm Population, April 1960 and 1959*, Series Census-AMS(P-27). Washington, Apr. 17, 1961.
62. ———, AGRICULTURAL MARKETING SERVICE, *Farm Population Estimates for 1950-1959*, AMS-80 (1959), Washington, Feb. 1960.
63. ———, AGRICULTURAL MARKETING SERVICE, *Farm Population: Migration to and from Farms, 1920-54*, AMS-10. Washington, Dec. 1954.
64. U. S. NATIONAL RESOURCES COMMITTEE, *Population Statistics: 1. National Data*. Washington 1937.
65. ———, *The Problems of a Changing Population*. Washington 1938.

66. U. S. NATIONAL RESOURCES PLANNING BOARD, *Estimates of the Future Population of the United States 1940-2000*, prepared by W. S. Thompson and P. K. Whelpton. Washington 1943.
67. U. S. PUBLIC HEALTH SERVICE, *Vital Statistics of the United States 1958*, Vol. I. Washington 1960.
68. ———, *Monthly Vital Statistics Report*, Vol. 9, No. 13, May 31, 1961.
69. U. S. SENATE, 61st Cong., 3rd Sess., Doc. No. 747, Reports of the Immigration Commission, *Abstracts of Reports of the Immigration Commission*, Vol. II. Washington 1911, pp. 451-500.
70. UNIVERSITIES-NATIONAL BUREAU COMMITTEE FOR ECONOMIC RESEARCH, *Demographic and Economic Change in Developed Countries*, Spec. Conf. 11. Princeton 1960.
71. F. A. WALKER, "Immigration and Degradation," *Forum*, Aug. 1891, 11, 634-44.
72. ———, "Restriction of Immigration," *Atlantic Monthly*, June 1896, 77, 822-29.
73. M. ZELNICK, *Estimates of Annual Births and Birth Rates for the White Population of the United States from 1855 to 1934*. Unpublished doctoral dissertation, Princeton Univ., Oct. 1958.

APPENDIX A: BASIC DATA

This appendix presents the basic tables underlying Figures 1-8. Detailed notes explaining the underlying sources and methods and precise time reference of the observations will appear in the reprint of this study by the National Bureau of Economic Research.

TABLE A-1—RATE OF CHANGE, TOTAL WHITE POPULATION, 1870-75/1955-59

Period	Rate of Change in Specified Quinquennium (per cent)	Period	Rate of Change in Specified Quinquennium (per cent)
1870-75	13.0	1915-20	5.6
1875-80	9.9	1920-25	8.6
1880-85	13.5	1925-30	6.3
1885-90	10.4	1930-35	3.5
1890-95	10.2	1935-40	3.6
1895-1900	8.2	1940-45	5.1
1900-05	9.7	1945-50	7.1
1905-10	10.6	1950-55	7.9
1910-15	9.2	1955-59 ^a	8.1

^a Adjusted to rate of change per quinquennium.

Sources: Through 1955 [27, p. 37, Table 1, cols. (1) and (3)]. The 1959 estimate was obtained by extrapolating the 1955 figure shown in [27] on the basis of the Bureau of the Census estimates for total white population (including adjustment for underenumeration of children aged 0-4) for July 1, 1955 and 1959 [53, No. 146 (Nov. 12, 1956), p. 7, and No. 212 (Jan. 26, 1960), p. 9].

TABLE A-2—LEVEL AND RATE OF CHANGE, CRUDE BIRTH RATE OF TOTAL WHITE POPULATION, 1855-59/1955-59

Period	Crude Birth Rate, Annual Average in Specified Quinquennium (per thousand)		Change in Crude Birth Rate since Preceding Period (per cent per quinquennium on base of given and preceding period)	
	Zelnick (1)	Official (2)	Zelnick (3)	Official (4)
1855-59	46.5	—	—	—
1860-64	41.5	—	-11.4	—
1865-69	39.7	—	-4.4	—
1870-74	39.7	—	0	—
1875-79	38.0	—	-4.4	—
1880-84	36.1	—	-5.1	—
1885-89	35.3	—	-2.2	—
1890-94	34.0	—	-3.8	—
1895-99	31.2	—	-8.6	—
1900-04	28.8	—	-8.0	—
1905-09	29.4	—	+2.1	—
1910-14	28.2	29.1	-4.2	—
1915-19	26.9	27.6	-4.7	-5.3
1920-24	25.2	26.0	-6.5	-6.0
1925-29	21.5	22.4	-15.8	-14.9
1930-34	18.3	18.9	-16.1	-16.9
1935-39	—	18.0	—	-4.9
1940-44	—	20.4	—	+12.5
1945-49	—	23.4	—	+13.7
1950-54	—	23.8	—	+1.7
1955-59	—	23.7	—	-.04

Source:

Column 1 [73].

Column 2 1909-54 [16, p. 26, Table 11].

1955-59 [58, p. 52, Table 52].

TABLE A-3—LEVEL AND RATE OF CHANGE OF FERTILITY RATIO, 1865-69/1925-29, AND OF GENERAL FERTILITY RATE, 1920-24/1954-58, OF TOTAL WHITE POPULATION BY NATIVITY

Period	Fertility in Specified Quinquennium (per thousand)			Change in Fertility since Preceding Period (per cent per quinquennium on base of given and preceding period)		
	Total White (1)	Native White (2)	Foreign-Born White (3)	Total White (4)	Native White (5)	Foreign-Born White (6)
Fertility Ratio ^a						
1865-69	877	—	—	—	—	—
1870-74	855	—	—	-2.5	—	—
1875-79	812	771	971	-5.2	—	—
1880-84	783	743	938	-3.6	-3.7	-3.5
1885-89	744	706	889	-5.1	-5.1	-5.4
1890-94	723	672	927	-2.9	-4.9	+4.2
1895-99	665	628	819	-8.4	-6.8	-12.4
1900-04	636	606	768	-4.5	-3.6	-6.4
1905-09	632	601	754	-0.6	-0.8	-1.8
1910-14	610	566	793	-3.5	-6.0	+5.0
1915-19	614	575	792	+0.7	+1.6	-0.1
1920-24	586	574	648	-4.7	-0.2	-20.0
1925-29	505	508	486	-14.8	-12.2	-28.6
General Fertility Rate ^b						
1920-24	111.4	106.4	—	—	—	—
1925-29	95.7	93.4	—	-15.2	-13.0	—
1930-34	79.6	79.4	—	-18.4	-16.2	—
1935-39	74.7	75.6	—	-6.4	-4.9	—
1940-44	85.2	87.4	—	+13.1	+14.5	—
1945-49	100.7	102.6	—	+16.7	+16.0	—
1950-54	108.6	109.2	—	+7.5	+6.2	—
1954-58	114.8	115.4	—	+6.9 ^c	+6.9 ^c	—

^a Number of children under 5 years old per 1,000 women 20 to 44 years old.^b Annual average total live births per 1,000 women 15 to 44 years old.^c Adjusted to rate of change per quinquennium.*Source:**Fertility ratio, 1865-69/1925-29*

Estimates of the present study based in large part on an unpublished memorandum prepared by Everett S. Lee of the University of Pennsylvania Study of Population Redistribution and Economic Growth providing age and parentage detail underlying the quinquennial series for 1870 to 1940 published by Kuznets [27].

General fertility rate, 1920-24/1954-58

Column 1 Average of annual data in [55, Series B-23]. Recent year data from [58, p. 56].

Column 2 Average of annual data in [55, Series B-24]. Recent year data from [67, p. 3-22].

TABLE A-4—LEVEL AND RATE OF CHANGE OF FERTILITY RATIO OF NATIVE WHITE POPULATION, 1885-89/1925-29, AND OF TOTAL WHITE POPULATION, 1925-29/1954-58, BY RURAL-URBAN RESIDENCE

Period	Fertility Ratio in Specified Quinquennium (per thousand)			Change in Fertility Ratio since Preceding Period (per cent per decade, on base of given and preceding period)		
	Total (1)	Urban (2)	Rural (3)	Total (4)	Urban (5)	Rural (6)
Native White						
1885-89	671	434	818	—	—	—
1895-99	631	400	809	-6.1	-8.2	-1.1
1905-09	606	407	797	-4.0	+1.7	-1.5
1915-19	565	407	757	-7.0	0	-5.1
1925-29	503	384	686	-11.6	-5.8	-9.8
Total White						
1925-29	485	388	658	—	—	—
1935-39	400	311	551	-19.2	-22.1	-17.7
1945-49	551	479	673	+31.7	+42.5	+19.9
1954-58	651	566	n.a.	+18.5*	+18.5*	—

* Adjusted to rate of change per decade.

Source: Native white, 1885-89, 1895-99. Estimates of the present study based chiefly on census reports and [45]. 1905-09 through 1925-29 [64, p. 30]. Total white, 1925-29 through 1945-49 [16, p. 17]. 1954-58, col. (1) derived from [53, Number 212 (Jan. 26, 1960), p. 9]; col. (2) estimated on the assumption that the relative change for urban white was the same as that for total white in col. (1).

TABLE A-5—FOREIGN-BORN WHITE POPULATION, RATIO OF MALES 25-34 TO FEMALES 20-29, AND PER CENT OF LATTER MARRIED, 1890-1930

Date	Ratio of Males 25-34 to Females 20-29 at Specified Date (per cent) (1)	Females 20-29, Per Cent Married at Specified Date (2)
1890	126	60.4
1900	129	61.3
1910	147	67.0
1920	154	75.3
1930	137	66.1

Source:

Column 1 [49, p. 16].

Column 2 Computed from the census sources cited in [45, p. 397, note a].

TABLE A-6—FOREIGN-BORN WHITE POPULATION, LEVEL AND RATE OF CHANGE OF FERTILITY RATIO, AND OF RATIO OF MALES 25-34 TO FEMALES 20-29 AND OF FEMALES 20-34 TO FEMALES 20-44, 1875-79/1925-29

Period	Fertility Ratio in Specified Quinquennium (per thousand)	Ratio of Males 25-34 to Females 20-29	Ratio of Females 20-34 to Females 20-44	Change since Preceding Date (per cent per quinquennium, on base of given and preceding period)		
		At Following Census or Mid-census Date (per cent)		Fertility Ratio	Ratio of Males 25-34 to Females 20-29	Ratio of Females 20-34 to Females 20-44
	(1)	(2)	(3)	(4)	(5)	(6)
1875-79	971	140.1	56.9	—	—	—
1880-84	938	126.7	59.1	-3.5	-10.0	+3.8
1885-89	889	126.4	63.1	-5.4	-0.2	+6.5
1890-94	927	138.0	64.0	+4.2	+8.8	+1.4
1895-99	819	128.8	61.9	-12.4	-6.9	-3.3
1900-04	768	135.9	59.9	-6.4	+5.4	-3.2
1905-09	754	147.0	62.3	-1.8	+7.9	+3.9
1910-14	793	152.2	62.3	+5.0	+3.5	0
1915-19	792	153.6	57.6	-0.1	+0.9	-7.8
1920-24	648	147.8	54.4	-20.0	-3.8	-5.7
1925-29	486	137.1	50.5	-28.6	-7.5	-7.4

Source:

Column 1 Table A-3, col. 3.

Columns 2 and 3 Census dates: from census reports. Mid-census dates; estimates of the present study based in part on census reports [29] [31].

TABLE A-7a—LEVEL AND RATE OF CHANGE, FERTILITY RATIO OF RURAL WHITE POPULATION AND REAL GROSS FARM INCOME PER ENGAGED, 1885-89/1925-29

Period	Fertility Ratio in Specified Quinquennium (per thousand)	Real Gross Farm Income per Engaged in Quinquennium Approximately 1.25 Years Earlier (index: 1924-28 = 100)	Change since Preceding Period (per cent per quinquennium, on base of given and preceding period)	
			Fertility Ratio	Real Gross Farm Income per Engaged
	(1)	(2)	(3)	(4)
1885-89	845 ^a	55.4	—	—
1895-99	836	56.0	-0.6 ^a	+0.6
1905-09	821	81.9	-0.9	+18.8
1915-19	781	118.8	-2.5	+18.4
1925-29	686	100.0	-6.5	-8.6

* Adjustment of the figure in column (1) to reflect underenumeration of children under 5 in excess of the National Resources Committee allowance of 5 per cent yields a value of 887. The rate of change in column (3) based on this adjusted 1885-89 figure is -3.0 per cent.

Source:

Column 1 Estimates of the present study based on census reports and [45].

Column 2 Gross farm income in current prices [39, p. 24, Table 8].

Persons engaged in farming [23, Table A-VI, pp. A-115-116]. Figures for the decade of the 'eighties are estimates of the present study based on [47, p. 46, Table 4].

Consumer's price index [34, pp. 150-51].

TABLE A-7b—LEVEL AND RATE OF CHANGE, CRUDE BIRTH RATE OF TOTAL FARM POPULATION AND REAL NET FARM INCOME PER HEAD OF FARM POPULATION, 1920-24/1954-58

Period	Crude Birth Rate, Annual Average in Specified Quinquennium (per thousand)	Real Net Farm Income per Head of Farm Population in Quinquennium 1.25 Years Earlier (Index: 1924-28 = 100)	Change since Preceding Period (per cent per quinquennium on base of given and preceding period)	
			Crude Birth Rate	Real Net Farm Income per Head
	(1)	(2)	(3)	(4)
1920-24	26.0	85.0	—	—
1925-29	25.1	100.0	-3.6	+16.2
1930-34	22.7	76.9	-9.7	-26.1
1935-39	22.6	96.3	-0.5	+22.4
1940-44	23.9	149.0	+5.4	+43.0
1945-49	25.5	217.6	+6.4	+37.4
1950-54	24.8	185.5	-2.6	-15.9
1954-58	25.1	167.3	+1.5 ^a	-12.9 ^a

* Adjusted to rate of change per quinquennium.

Source:

Column 1 1920-1949, [63, pp. 8-14]. 1950-58, [62, p. 6].

Column 2 Net income to persons on farms from farming [55, p. 283, series K-128]. 1955-58 [60, p. 488, Table 688].

Farm population, same sources as for col. (1).

Prices paid by farmers for family living, 1920-54 [55, Series K-132]. 1955 on [60, p. 479, Table 682].

TABLE A-8—LEVEL AND RATE OF CHANGE OF URBAN NATIVE WHITE FERTILITY RATIO, UNEMPLOYMENT RATE OF CIVILIAN LABOR FORCE, AND RATE OF CHANGE OF TOTAL WHITE MALE POPULATION AGED 20-29, 1885-89/1954-58

Period	Fertility Ratio in Specified Quinquennium* (per thousand)	Per Cent of Civilian Labor Force Unemployed in Quinquennium Approximately 1.25 Years Earlier	Change in Total White Male Population Aged 20-29 in Specified Quinquennium (per cent per quinquennium)	Change since Preceding Period		
				Fertility Ratio (per cent per decade on base of given and preceding quinquennium)	Per Cent of Civilian Labor Force Unemployed (percentage points)	Change in Total White Male Population Aged 20-29 (percentage points)
	(1)	(2)	(3)	(4)	(5)	(6)
1885-89	434	5.0	11.4	—	—	—
1895-99	400	11.7	7.4	-8.1	+6.7	-4.0
1905-09	407	3.8	15.8	+1.7	-7.9	+8.4
1915-19	407	5.7	-2.2	0	+1.9	-18.0
1925-29	384*	4.0	7.7	-5.8	-1.7	+9.9
1935-39	311	18.4	3.3 ^a	-22.0	+14.4	-4.4
1945-49	479	2.8 ^b	-0.4	+42.5	-15.6	-4.0
1954-58	566	4.3	-2.6	+18.5 ^d	+1.7 ^d	-2.4 ^d

* For 1935-39 on figures are for urban total white. The overlap value for 1925-29 comparable to later dates is 388.

^b Figures for 1954-58 are from a different source than those for earlier dates. The overlap value for 1945-49 comparable to 1954-58 is 2.9.

^c Figures for 1945-49 on are from a different source than those for earlier dates. The overlap value for 1935-39 comparable to later dates is 3.6.

^d Adjusted to rate of change per decade.

Source:

Column 1 Table A-4, col. 2.

Column 2 1900-1948 [30, p. 215]. 1944-48 (overlap value) and 1953-57 [59, p. 1, Table A-1]. 1894-98, a preliminary extension of the 1900-1948 series kindly provided by Stanley Lebergott. The 1884-88 estimate was made by the present writer on the basis of [14, p. 128].

Column 3 Through 1935-39, computed from figures for census dates from basic census reports, and for mid-census dates from estimates of present study made largely on the basis of the first source cited in Table A-3. For 1935-39 (comparable to later years) on, figures computed from [53, Nos. 98, 114, 146, 212].

**APPENDIX B: ANALYSES OF COMPONENTS OF CHANGE IN TOTAL
WHITE AND TOTAL NATIVE WHITE FERTILITY**

**TABLE B-1—NATIVITY COMPONENTS OF CHANGE IN TOTAL WHITE
FERTILITY RATIO, 1875-79/1925-29**

Period	Fertility Ratio in Specified Quinquennium (per thousand)			Change in Total White Fertility Ratio since Preceding Period Attributable to Contribution of				
	Total White	Native White	Foreign-Born White	All Factors	Change in Fertility Ratio of		Change in Nativity Distribution of White Females Aged 20-44	Interaction Terms
					Native White	Foreign-Born White		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1875-79	812	771	971	—	—	—	—	—
1880-84	783	743	938	-29	-22	-7	—	—
1885-89	744	706	889	-39	-29	-10	—	0
1890-94	723	672	927	-21	-27	+8	-2	0
1895-99	665	628	819	-58	-35	-21	-1	-1
1900-04	636	606	768	-29	-18	-10	-1	0
1905-09	632	601	754	-4	-4	-3	+2	+1
1910-14	610	566	793	-22	-28	+8	-1	-1
1915-19	614	575	792	+4	+7	—	-3	0
1920-24	586	574	648	-28	-1	-26	-3	+2
1925-29	505	508	486	-81	-55	-27	-1	+2

Source and method:

Columns 1-3 Table A-3, cols. (1)-(3).

Columns 5-7 Method: the values of all components were held constant at their beginning of period levels except for the component whose contribution was being assessed, and the change in the total that would have resulted from the change in this component alone was computed.

Column 8 Col. (4) - cols. (5)-(7).

**TABLE B-2—URBAN-RURAL COMPONENTS OF CHANGE IN NATIVE
WHITE FERTILITY RATIO, 1885-89/1925-29**

Period	Fertility Ratio in Specified Quinquennium (per thousand)			Change in Native White Fertility Ratio since Preceding Period Attributable to Contribution of				
	Total Native White	Urban Native White	Rural Native White	All Factors	Change in Fertility Ratio of		Change in Urban-Rural Distribution of Native White Females Aged 20-44	Interaction Terms
					Urban Native White	Rural Native White		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1885-89	671	434	818	—	—	—	—	—
1895-99	631	400	809	-40	-13	-6	-20	-1
1905-09	606	407	797	-25	+3	-7	-24	+3
1915-19	565	407	757	-41	0	-20	-21	0
1925-29	503	384	686	-62	-13	-32	-20	+3

Source and method:

Columns 1-3 Table A-4, cols. (1)-(3).

Columns 5-8 See explanation for Table B-1, cols. (5)-(8).

THE ROLE OF MONEY IN TRADE-BALANCE STABILITY: SYNTHESIS OF THE ELASTICITY AND ABSORPTION APPROACHES

By S. C. TSIANG*

The spirited controversy between S. S. Alexander [1] [2] and Fritz Machlup [13] [14] on the relative merits of the relative prices (or elasticities) and aggregate spending (absorption) approaches to the problem of determining the effect of devaluation appears to have ended, for the time being, in a rather disappointing anticlimax. After having witnessed the mutual accusation of the rival approaches as consisting of implicit theorizing based upon purely definitional tautologies [13, pp. 268-71] [2, pp. 22-24], one feels somewhat let down by the compromise which Alexander now proposes [2, pp. 26-34]: that the result obtained by the traditional elasticities approach may be treated as the "initial" (or primary) effect of a devaluation to which a sort of "multiplier" (normally less than unity), computed from the propensities to hoard, to import, etc., is to be applied to yield the final effect of the devaluation.

The extension of the elasticity approach by a superimposition of a multiplier analysis in this manner is essentially the same as what A. J. Brown had already done in 1942.¹ Indeed, it was already indicated by J. Robinson [18, esp. p. 93] in her pioneering article on the foreign exchanges first published in 1937.

The superimposition of a multiplier upon the elasticities solution of the effect of a devaluation usually glosses over the following difficulty: Unless the supplies of exportable and domestic goods in both countries concerned are all infinitely elastic, so that prices in both countries (except prices of imports) will remain constant, the multiplier effect of the initial change in the trade balance will bring about further changes in relative prices, and hence further substitution between imports and domestically produced goods in both countries. Thus if the conventional elasticities solution is treated as a sort of multiplicand, to which a multiplier (or a damping coefficient) is to be applied to obtain the final effect, then the multiplier itself should again involve the relevant elasticities that are in the multiplicand. There can be no neat dichotomy

* The author is professor of economics at the University of Rochester. He is indebted to T. C. Liu and E. Zabel for discussion at different stages of the preparation of this paper, and to Fritz Machlup, J. J. Polak, J. M. Fleming, and R. A. Mundell for reading the manuscript and making a number of valuable suggestions.

¹ See [6, esp. pp. 64-66]; also Allen [3].

of the final effect of a devaluation into a part that consists of the elasticities solution and another that consists of the multiplier (or absorption) solution. The total effect of a devaluation must be analyzed in a comprehensive system in which changes in incomes, prices and outputs are all taken into consideration. In fact, even before Alexander raised the outcry against the elasticities approach and proposed the substitution of the absorption approach, a number of attempts had already been made to analyze the effect of a devaluation with more or less comprehensive mathematical systems that allow for both income and price changes, notably those by Meade [15], Harberger [7], Laursen and Metzler [12], and Stuvell [22]. If the controversy between the relative-prices and aggregate-spending approaches merely leads to a synthesis which had already been worked out before the controversy, what then has been gained by the debate?

If anything of enduring value has come out of Alexander's proposal of the absorption approach, it is the fact that the simple identity:

$$\begin{array}{rcccl}
 B & = & Y & - & A \\
 \text{Trade} & & \text{National} & & \text{Absorption} \\
 \text{Balance} & & \text{Income} & & \text{or National} \\
 & & & & \text{Expenditure}
 \end{array}$$

which he pushed to the forefront in the analysis of the effect of a devaluation, has brought out in strong relief a fundamental fact, viz., that a negative trade balance necessarily implies national expenditure in excess of national income. This obvious truth was underscored by Machlup [13, pp. 272-73] who therefore emphasized the role played by credit creation in sustaining the excess expenditure in the case of a trade deficit (a negative B) and concluded that "nothing can be said about the effects of a devaluation unless exact specifications are made regarding the supply of money and credit." The highlighting of the monetary implications of a balance-of-payments deficit or surplus was also stressed by Johnson [10, pp. 156-58] as the major contribution of the absorption approach. More recently, Michaely, in an attempt to reconcile the relative-prices and absorption approaches under the assumption of full employment, also naturally resorted to the "real balance effect" of devaluation-induced price changes with the money supply kept constant [16]. Thus as a by-product of Alexander's attack on the elasticities approach, the much neglected role played by the supply of money and credit in working out the effect of a devaluation and the stability of the trade balance is once more being recognized.²

² Monetary factors were certainly not overlooked by classical economists, who regarded the contraction or expansion of the money supply under the gold standard as the automatic mechanism for the adjustment of the balance of payments. It is with the advent of the "new economics" and the breakdown of the gold standard that monetary factors came to be disregarded in the discussion of the balance of trade and devaluation.

The rediscovery of the significance of monetary factors, however, has not yet been reflected in the formulae and mathematical models for the analysis of the effect of a devaluation on the balance of trade. Not only did the conventional elasticities formulae of the effect of devaluation take no account of the monetary factors (since implicitly they generally assume a constant money income), but in the various attempts to combine the elasticities approach with a multiplier analysis (e.g., those of Brown [6] and Allen [3], and even in most of the more or less comprehensive models of Harberger [7], Laursen and Metzler [12], Stuvell [22],³ and Jones [11]), the role of money and credit was also totally disregarded. In a quite recent attempt to marry the elasticity and the absorption approaches, Brems also did not include either the money supply or the rate of interest in his otherwise rather complicated mathematical model [5]. Even Alexander himself tends to neglect the role of money; for in his discussion of the multiplier process engendered by the initial change in the trade balance, a process supposed to be determined by the propensities to hoard and to spend on imports and exportables, the monetary mechanism of income expansion was never brought in at all. It was only in his discussion of the cash balance effects at full employment that the money supply was briefly mentioned [2, p. 33].

In this respect, Meade's model for the analysis of the balance of payments stands out as a splendid exception; for he alone included the money supply and the rate of interest as variables in his model and always clearly stated the specific assumptions he made about monetary and fiscal policies. Unfortunately, however, Meade worked out the solution for the effect of a devaluation from his model only under the assumption of either a so-called "Keynesian neutral economy" or that of a monetary policy that ensures "internal balance." Under the "neutral economy" assumption, the monetary authorities are supposed to keep the supply of money infinitely elastic at a constant interest rate, so that the supply of money will passively adapt itself to whatever the demand for money might be at the constant interest rate [15, pp. 31, 49]. This in effect obliterates all possible influences the supply of money and the interest rate might have on his solution for the effect of a devaluation. On the other hand, the assumption of a monetary policy that ensures "internal balance" (i.e., a constant level of employment [15, pp. 33, 56-57]), coupled with the assumptions that money wage rates are exogenously given and that prices always equal marginal labor cost, in effect implies that money income is somehow effectively kept constant, provided money wage rates remain constant. This again

³ Harberger, in his review article [8, esp. pp. 858-59], strongly criticized Stuvell for not even mentioning the amount of money or the rate of interest in his analysis, nor stating what kind of monetary or fiscal policy he assumes. Harberger also admitted that he himself committed the same omission in his own earlier attempt at model construction.

eliminates all the positive influences the money supply and the interest rate might exert on the effect of a devaluation, as they are assumed to adjust themselves passively to the requirements of the policy objective of maintaining money income constant [15, pp. 68-72; Table 4, p. 150].

The purpose of this paper is to demonstrate the crucial role that could be played by monetary factors and thus to show in a more comprehensive way how relative prices and income-expenditure adjustments combine to determine the effect of a devaluation. To avoid further proliferation of models, each with the idiosyncracies of its creator fully displayed in the choice of variables and notation system, I shall adopt Meade's simplified two-country, two-commodity model, which seems by far the most economically sound, and shall only make a slight modification to make good an omission (*viz.*, that of the effect of changes in the terms of trade on aggregate expenditure) which has been much discussed since Harberger, Laursen and Metzler pointed out its possible significance. I shall also trim his model of all nonessential policy variables, such as tariff rates and various shift variables, which he adopted to represent controlled or uncontrolled shifts in various functional relationships, so as to make the system intelligible to the reader without overtaxing his perseverance.⁴

I. The Model

We shall adopt Meade's notation throughout so as to facilitate comparison between his results and ours. In Meade's notation, a subscript *a* refers to country A and a subscript *b* to country B. The subscript *ab* for a term indicates that it is the sum of a corresponding A-term and B-term (e.g., $\pi_{ab} = \pi_a + \pi_b$). Capital italic letters refer to total quantities; small italic letters to small increments (or differentials) of those qualities; and a bar over a term means a price corresponding to that term. The small Greek letters stand for functional relationships between the differentials (i.e., either partial derivatives or elasticities obtained from such partial derivatives). Thus:

Q_a = A's product.

\bar{Q}_a = the price of A's product, which is put equal to 1 at the initial position by using the appropriate unit for Q_a .

H_a = volume of employment in country A.

\bar{H}_a = the money wage rate in country A, which is put equal to 1 at the initial position by choosing the appropriate unit for H_a .

⁴ The popularity of Meade's excellent work has suffered a great deal from the overcomplicated model and its formidable list of variables, which he presented at the very beginning of his book, but which he himself abandoned later as too cumbersome to yield any definite result. Even Alexander complained that Meade's model is "unintelligible to any but the most dogged readers" [2, p. 24].

I_a = the physical volume of A's imports, which constitute B's exports.

D_a = domestic expenditures in A in terms of domestic currency.

R_a = the rate of interest in A.

M_a = the amount of money in A.

The corresponding terms for country B with the subscript b are similarly defined.

E = the rate of exchange expressed as the number of units of A's currency per unit of B's currency, which is again put equal to 1 at the initial position by choosing the appropriate unit for B's currency.

T = the balance of trade, i.e., the net excess of A's receipts from exports valued in A's currency.

It is assumed that at the initial position:

$$I_a \bar{Q}_b E = I_b \bar{Q}_a = I_a = I_b = I.$$

The differentials of these terms are represented by the corresponding small italic letters with the same subscripts, thus $d\bar{Q}_a = q_a$, $d\bar{Q}_b = q_b$, etc.

Meade's system as simplified for our purpose may be represented by the following system of equations in differentials. First, we have a pair of identities for the increments in domestic expenditures for the two countries:

$$(1) \quad d_a = q_a - i_b + i_a + (Q_a - I)q_a + Iq_b + Ie,$$

$$(2) \quad d_b = q_b - i_a + i_b + (Q_b - I)q_b + Iq_a - Ie,$$

which are obtained by differentiating the following definitional expenditure identities:

$$D_a = \bar{Q}_a(Q_a - I_b) + \bar{Q}_b EI_a,$$

$$D_b = \bar{Q}_b(Q_b - I_a) + \bar{Q}_a \frac{1}{E} I_b.$$

Next Meade gives us the two domestic expenditure functions in differentials:

$$(3) \quad d_a = (1 - \lambda_a)q_a - \rho_a r_a + D_a q_a,$$

$$(4) \quad d_b = (1 - \lambda_b)q_b - \rho_b r_b + D_b q_b,$$

where $(1 - \lambda_a)$ and $(1 - \lambda_b)$ are the partial derivatives of domestic expenditures with respect to domestic money incomes, and hence λ_a and λ_b are the marginal propensities to hoard, and ρ_a and ρ_b are the partial derivatives of domestic expenditures with respect to the interest rate in the two countries, respectively. The terms $D_a q_a$ and $D_b q_b$ are intro-

duced to indicate that these expenditures functions are "real functions" in the sense that domestic expenditure in real terms is a function of real income, so that a change in the general price level would bring about a proportionate change in money expenditures. Here for the sake of simplicity, Meade has taken the change in the price level of domestic products to represent the change in the general price level so that the effect of a change in the terms of trade on the price level and on the level of aggregate domestic expenditures is neglected.⁵

However, the effect upon domestic expenditure of a change in the terms of trade produced by a devaluation has been emphasized by both Harberger [7, pp. 50-55] and Laursen and Metzler [12, pp. 295-97] as having the effect of making the stability condition for the exchange rate more stringent. To assume away with Meade the effect of the terms of trade on domestic expenditure would, therefore, seem to gloss over a potentially significant factor. In fact, Meade has been strongly criticized by H. Johnson for this omission [10A, pp. 816-18 and 830-32]. Actually, Meade could have allowed for the effect of a change in the terms of trade on domestic expenditure without making the aggregate expenditure functions too complicated to handle. For if we assume with Meade that the relationship between domestic expenditure and its determinants is a "real" and not a "money" relationship and that there is no money illusion (so that the money expenditure function is homogeneous of degree 1 in money income and all prices, including prices of imports), then the two equations for changes in aggregate expenditures,

⁵ In effect, (3) and (4) are derived by differentiating aggregate expenditure functions of the type:

$$(i) \quad D_a = D_a\{Q_a\bar{Q}_a, \bar{Q}_a, R_a\}$$

which is supposed to be homogeneous of degree 1 in $Q_a\bar{Q}_a$ and \bar{Q}_a . By Euler's Theorem,

$$\begin{aligned} D_a &= \frac{\partial D_a}{\partial (Q_a\bar{Q}_a)} \cdot Q_a\bar{Q}_a + \frac{\partial D_a}{\partial \bar{Q}_a} \bar{Q}_a \\ (ii) \quad &= (1 - \lambda_a)Q_a + \frac{\partial D_a}{\partial \bar{Q}_a} \\ \therefore \frac{\partial D_a}{\partial \bar{Q}_a} &= D_a - (1 - \lambda_a)Q_a. \end{aligned}$$

Substitute (ii) in the differentiation of (i), we get:

$$d_a = (1 - \lambda_a)q_a + D_a\bar{q}_a - \rho_a r_a.$$

Alternatively, (3) and (4) may be regarded as derived from expenditure functions of the form:

$$(iii) \quad \frac{D_a}{\bar{Q}_a} = D_a^* \left\{ \frac{Q_a\bar{Q}_a}{\bar{Q}_a}, R_a \right\},$$

which, upon differentiation, yields directly the same result.

taking into consideration the effect of the terms of trade, would be no more complicated than:

$$(3a) \quad d_a = (1 - \lambda_a)q_a - \rho_a r_a + D_a \bar{q}_a - \lambda_a I(\bar{q}_a - \bar{q}_b - e)$$

and

$$(4a) \quad d_b = (1 - \lambda_b)q_b - \rho_b r_b + D_b \bar{q}_b - \lambda_b I(\bar{q}_b - \bar{q}_a + e).^6$$

In view of the lively controversy over the possible effect of a change in the terms of trade upon aggregate domestic expenditure,⁷ I shall try to derive (3a) and (4a) in the most unsophisticated and least controversial way. Let us suppose that in the absence of money illusion and dynamic price expectations, domestic expenditure in real terms is a function of domestic real income and the interest rate, i.e.,

$$(5) \quad \frac{D_a}{P_a} = D_a \left\{ \frac{Q_a \bar{Q}_a}{P_a}, R_a \right\}$$

where P_a is the general price level in country A, defined as:

$$(6) \quad P_a = \frac{D_a - I_a}{D_a} \bar{Q}_a + \frac{I_a}{D_a} \bar{Q}_b E,$$

which is equal to 1 at the initial position, since $\bar{Q}_a = \bar{Q}_b = E = 1$. Equation (5) indicates that domestic money expenditure is homogeneous of degree 1 in money income and all prices.⁸

Differentiating (5) and (6) and substituting, we get:

$$\begin{aligned} d_a - (D_a - I) \bar{q}_a - I(\bar{q}_b + e) \\ = (1 - \lambda_a) \left[q_a + Q_a \bar{q}_a - \frac{Q_a(D_a - I)}{D_a} \bar{q}_a - \frac{Q_a I}{D_a} (\bar{q}_b + e) \right] - \rho_a r_a. \end{aligned}$$

⁶ This was first pointed out to me by T. C. Liu of Cornell University.

⁷ See, for example, [25] [21] [17] and [11]. Although Laursen and Metzler have specifically discussed the effect of a change in the exchange rate upon domestic money expenditure, including investment as well as consumption, later participants in this discussion have concentrated exclusively on the effect upon consumption expenditure to the total neglect of the effect upon investment expenditure, as if the latter may be assumed to be fixed in money terms with a change in import prices. Actually, under the assumptions of no money illusion and no dynamic price expectations, there is as much reason to assume money expenditure on investment to be homogeneous of degree 1 in all prices and money income as to assume the same for money expenditure on consumption.

⁸ The money balances effect (or the Pigou effect) of a proportionate rise in money income and all prices may preclude the homogeneity of the money expenditure function. However, an increase in the relative scarcity of cash balances implies a rise in the marginal convenience yield of money balances and hence would lead to a rise in the interest rate, which is included as another determining variable of the expenditure function. The Pigou effect of a proportionate rise in all prices is therefore taken care of in the term $\rho_a r_a$, and hence would not interfere with the homogeneity of the expenditure function in money income and all prices, exclusive of the interest rate.

Since at the initial position $Q_a = D_a$, therefore,

$$d_a = (1 - \lambda_a)q_a + D_a \bar{q}_a - \lambda_a I(\bar{q}_a - \bar{q}_b - e) - \rho_a r_a.$$

By a similar procedure, (4a) may be obtained.⁹ Equations (3a) and (4a) clearly indicate that the partial derivative of domestic expenditure with respect to a change in the terms of trade (an improvement is here to be treated as a positive change and a worsening a negative change) is equal to minus the marginal propensity to hoard times the initial amount of imports of the country concerned (i.e., $-\lambda_a I$ or $-\lambda_b I$).¹⁰

The two import functions are written by Meade in differentials as follows: For country A,

$$\begin{aligned} (7) \quad i_a &= \pi_a d_a + [-(Q_a - I)\pi_a + I\epsilon_a]\bar{q}_a - I(\pi_a + \epsilon_a)(\bar{q}_b + e) \\ &= \pi_a d_a - \pi_a Q_a \bar{q}_a + I(\pi_a + \epsilon_a)(\bar{q}_a - \bar{q}_b - e) \end{aligned}$$

where π_a is A's propensity to import defined with reference to A's aggregate national expenditure instead of national income; ϵ_a is what he calls "the expenditure compensated price elasticity of demand for imports in A" (or in other words, the elasticity of the pure substitution effect on A's import demand with respect to the relative price ratio between domestic products and imports); and hence $-(Q_a - I)\pi_a \bar{q}_a$ and $-I\pi_a(\bar{q}_b + e)$ are the familiar Slutsky-Hicksian income effect on A's demand for imports of a change in the price of A's domestic products and a change in A's import prices, respectively, and $I\epsilon_a(\bar{q}_a - \bar{q}_b - e)$ the pure substitution effect on A's import demand of the change in the relative price ratio in A between domestic products and imports.¹¹

Similarly, for country B, we have

$$(8) \quad i_b = \pi_b d_b - \pi_b Q_b \bar{q}_b + I(\pi_b + \epsilon_b)(\bar{q}_b - \bar{q}_a + e)$$

⁹ A crucial assumption here is that $Q_a \bar{Q}_a = Q_a = D_a$ and $Q_b \bar{Q}_b = Q_b = D_b$ at the initial position which is implied in the assumption that trade is initially balanced.

¹⁰ This result agrees fully with those obtained by Harberger and Jones. Harberger, in whose model there is no investment, has shown that the effect of the terms of trade (an adverse change is treated as a positive change) is equal to the propensity to save times the initial amount of imports [7, pp. 52-53]. Jones, by a more general and elegant method, has shown that the partial derivative of consumption expenditure with respect to a rise in import prices is equal to: (1 minus the ratio of the marginal propensity to consume to the average propensity to consume) times the initial amount of imports [11, pp. 78-79]. Substituting total expenditure and the propensity to spend for consumption expenditure and the propensity to consume, respectively, and taking into account the assumption that in our model the average propensity to spend is 1 in the initial position (trade being initially balanced), their results can be readily converted to ours.

¹¹ The Slutsky-Hicksian way of splitting off the income effect of a price change presumes that the effect on real income of a change in the price of a commodity, with money income fixed, is equal to the initial volume of that commodity purchased times the change in its price. In his criticism of Harberger, however, Spraos has rightly pointed out that in so far as there is a part of income which is neither spent on domestic products nor on imports, the loss in real income out of a fixed money income implied by, say, a rise in import prices is greater than the

The income effect components of the effect on import demand of a change in domestic prices or import prices perhaps require a little further explanation. Since Meade has defined π_a as the partial derivative of imports with respect to domestic expenditure instead of national income, it might be thought that in formulating these import functions, Meade has not been consistent with his definition of the propensity to import. For it might be questioned that if π_a (or π_b) is defined as the marginal propensity to import with reference to aggregate money expenditures, should not the income effect on the demand for imports of a change in, say, domestic prices be written as $-(Q_a - I)\pi_a(1 - \lambda_a)\bar{q}_a$, since out of the equivalent implicit increase in money income only $(1 - \lambda_a)$ part of it will result in new expenditure and only π_a times the new expenditure concerned will be on additional imports? This inconsistency, however, is only apparent; for if the decrease in domestic prices should result in a net decrease in aggregate money expenditure (a net hoarding) equal to $\lambda_a(Q_a - I)$, its effect on import demand is already taken care of by the term $\pi_a d_a$. When aggregate money expenditure is included as a separate determining variable of import demand, therefore, we may assume, in formulating the income effect of a change in domestic prices (or in import prices), that all the implicit increase in income will be spent or that all the implicit decrease in income will be borne by a cut in expenditure.

Meade's definition of the propensity to import with reference to aggregate expenditure must be regarded as an improvement over the conventional one which related the demand for imports to domestic national income. For the demand for imports, in so far as they are finished

initial amount of imports consumed times the rise in import prices; for the loss in real value of the part of income that was initially not spent must also be compensated. Otherwise the demand function would imply some degree of money-illusion. In the present case, however, it is assumed that trade was initially balanced so that all income must have been spent initially either on imports or on domestic products. Hence, as Spraos himself has conceded, his objection would not apply to the present case [21, p. 144, esp. fn. 4].

Meade's import demand equations, i.e., (7) and (8), certainly cannot be accused of implying the presence of money illusion, because it can be shown that the partial derivatives of the demand for imports in these two equations satisfy Euler's theorem for a homogeneous equation of degree zero in all the determining variables; for from, say, equation (7) we have:

$$\frac{\partial I_a}{\partial D_a} = \pi_a; \quad \frac{\partial I_a}{\partial \bar{Q}_a} = [-(Q_a - I)\pi_a + I\epsilon_a]$$

and

$$\frac{\partial I_a}{\partial (\bar{Q}_a E)} = -I(\pi_a + \epsilon_a).$$

Thus

$$\pi_a D_a + [-(Q_a - I)\pi_a + I\epsilon_a]\bar{Q}_a - I(\pi_a + \epsilon_a)\bar{Q}_a E = 0,$$

since at the initial position $\bar{Q}_a = \bar{Q}_b = E = 1$, and $D_a = Q_a$.

products, as is tacitly assumed in this model, is clearly primarily a function of total expenditure and, hence, is correlated with national income only at one remove (i.e., through the correlation between income and expenditure). Since in the present model the relationship between income and expenditure is subject to the influence of both the interest rate and the terms of trade, the relationship between income and demand for imports may also be expected to change under the influences of these factors. Such influences on the functional relationship between income and import demand can only be taken into account when the propensity to import is defined as Meade did, i.e., with respect to expenditures instead of income.

Next we shall adopt Meade's equations for the changes in domestic prices simplified by the assumption of constant money wages, viz.

$$(9) \quad \bar{q}_a = \frac{1}{\eta_a} \frac{q_a}{Q_a}$$

$$(10) \quad \bar{q}_b = \frac{1}{\eta_b} \frac{q_b}{Q_b}$$

where η_a and η_b are the elasticities of supply of A and B's products, respectively, in terms of real labor cost (i.e., in terms of wage units).¹²

When full employment is reached, the expressions on the right-hand side of (9) and (10) would automatically become indeterminate forms, with q and η both approaching zero, and thus would leave it entirely to

¹² These are derived from the condition that the prices of domestic products in both countries must equal the marginal costs of those products, i.e.,

$$(11) \quad \bar{Q}_a = \bar{H}_a \frac{h_a}{q_a},$$

$$(12) \quad \bar{Q}_b = \bar{H}_b \frac{h_b}{q_b}.$$

Differentiating (11), we get:

$$\bar{q}_a = \bar{H}_a d\left(\frac{h_a}{q_a}\right) + \frac{h_a}{q_a} \bar{H}_a = d\left(\frac{h_a}{q_a}\right)$$

since \bar{H}_a is assumed constant and put equal to 1 at the initial position. By definition,

$$\eta_a = \frac{\frac{h_a}{q_a}}{\frac{q_a}{Q_a}} = \frac{d\left(\frac{h_a}{q_a}\right)}{\frac{q_a}{Q_a}}.$$

By (11), however, when \bar{Q}_a and \bar{H}_a are put equal to 1, h_a/q_a must also equal 1.

$$\therefore \bar{q}_a = d\left(\frac{h_a}{q_a}\right) = \frac{1}{\eta_a} \frac{q_a}{Q_a}.$$

The derivation of (10) is exactly the same.

the other equations of the system to determine the changes in domestic prices with no change in domestic products (i.e., a zero q).

We shall also simplify the demand-for-money equations in Meade's model by getting rid of the assumed link between money supply and gold or foreign exchange reserves, as there is hardly any country that mechanically follows this rule of the gold standard game. Thus we shall simply state that:

$$(13) \quad m_a = \xi_a(q_a + Q_a \bar{q}_a) - \zeta_a r_a$$

$$(14) \quad m_b = \xi_b(q_b + Q_b \bar{q}_b) - \zeta_b r_b$$

where ξ_a and ξ_b are redefined, as distinct from Meade's own usage, as the partial derivatives of the demand for money with respect to money income in countries A and B, respectively, and ζ_a and ζ_b are redefined as the partial derivatives of their demand for money with respect to domestic interest rates, respectively.

Finally, the balance-of-trade equation in differentials and in terms of A's currency may be stated as:

$$(15) \quad t = i_b - i_a + I\bar{q}_a - I(\bar{q}_b + e).$$

The eleven equations (1), (2), (3), (4), or alternatively (3a) and (4a) as we have amended them, (7)-(10) and (13)-(15) should normally be sufficient to determine the eleven variables, d_a , d_b , \bar{q}_a , \bar{q}_b , i_a , i_b , r_a , r_b , and t . The variables m_a , m_b and e will be treated as exogenous policy variables. In particular, when we want to examine the effect of a devaluation on the trade balance, we shall determine the value of t in terms of e and the parameters when all the other dependent variables have adjusted to the new situation.¹³

¹³ It should be noted that substituting (15) into (1) and (2) in turn, we get:

$$(1') \quad t = q_a + Q_a \bar{q}_a - d_a$$

$$(2') \quad t = d_b - (q_b + Q_b \bar{q}_b)$$

Furthermore, by substituting (3) into (1') and (4) into (2'), we get:

$$(3') \quad t = \lambda_a q_a + \rho_a r_a$$

$$(4') \quad t = -\lambda_b q_b - \rho_b r_b$$

and similarly, by substituting (3a) into (1') and (4a) into (2') we get:

$$(3'a) \quad t = \lambda_a q_a + \rho_a r_a + \lambda_a I(\bar{q}_a - \bar{q}_b - e)$$

$$(4'a) \quad t = -\lambda_b q_b - \rho_b r_b - \lambda_b I(\bar{q}_b - \bar{q}_a + e).$$

These equations facilitate the solution of t in terms of e , i.e., the ascertainment of the effect of a small devaluation on the trade balance, which we shall presently proceed to do.

(1') and (2') indicate that the change in the trade balance must be equal to the change in the gap between national product and expenditure (absorption). (3') and (4'), or (3'a) and (4'a), further tell us that the improvement in the trade balance must equal the increase in hoardings, which are either income-induced, or interest-induced, or terms-of-trade-induced—the last mentioned item being shown only in (3'a) and (4'a). These equations, however, pro-

II. *Effect of a Devaluation*A. *Internal Balance Assumed*

As pointed out above, the effect of a devaluation was examined by Meade only under the assumption of either a Keynesian neutral monetary policy or a monetary policy that assures internal balance. The assumption of a monetary policy that ensures internal balance for both countries concerned implies that q_a and q_b are both zero. With the additional assumption that money wages are given, \bar{q}_a and \bar{q}_b may also be taken as zero. Thus equations (9) and (10) may be dropped and the rest of the equations greatly simplified. The solution for t/e obtained from equations (1), (2), (7), (8) and (15) is:

$$(16) \quad \frac{t}{e} = \frac{dT}{dE} = \frac{(\pi_{ab} + \epsilon_{ab} - 1)I}{1 - \pi_a - \pi_b}$$

where

$$\pi_{ab} = \pi_a + \pi_b \quad \text{and} \quad \epsilon_{ab} = \epsilon_a + \epsilon_b.^{14}$$

The solution is different from the Marshall-Lerner formula in that it has a denominator of $1 - \pi_a - \pi_b$. This is solely due to the fact that the propensities to import are defined here with respect to aggregate expenditures instead of incomes, so that the effect on the demand for imports of changes in aggregate expenditures cannot be excluded even though incomes in both countries are, by assumption, kept constant.¹⁵

For stability of the exchange rate, it is necessary that t/e should be positive, i.e., that a devaluation should bring about an improvement in the balance of trade. Since the denominator $(1 - \pi_a - \pi_b)$ can normally be assumed to be positive, the stability-condition for the exchange rate is the same as that implied in the Marshall-Lerner formula, viz., that

vide only partial solutions for the effect of devaluation on the trade balance; for $q_a, q_b, r_a, r_b, \bar{q}_a$ and \bar{q}_b will all be affected by e , and the total effect on t will depend on how they in their turn are affected. This is, however, as far as the absorption approach can carry us. To obtain a full solution for the effect of a devaluation, the elasticity approach must be called in.

¹⁴ From (1') and (2') in footnote 13 above, we can see directly that, when internal balance is maintained in both countries,

$$t = -d_a = d_b.$$

Substitute this result into (7), (8) and (15), we get the result (16).

¹⁵ It can be shown that when the propensities to import of both A and B are defined with respect to their respective money incomes, as is usually done, so that the import demand functions may be written as:

$$(7a) \quad i_a = \pi_a^* q_a + I(\pi_a^* + \epsilon_a)(\bar{q}_a - \bar{q}_b - e)$$

and

$$(8a) \quad i_b = \pi_b^* q_b + I(\pi_b^* + \epsilon_b)(\bar{q}_b - \bar{q}_a + e)$$

the denominator would disappear.

the sum of the elasticities of demand for imports in both countries (including both the income effect and the substitution effect) should be greater than unity.

Also note that under Meade's assumption of internal balance, the introduction of the terms-of-trade effect on aggregate expenditure would make no difference at all in the effect of a devaluation on the trade balance. In other words, substituting (3a) and (4a) for (3) and (4) in the above system of 9 equations would yield exactly the same solution for t/e as (16). This is because the additional effect on expenditure of a change in the terms of trade would be automatically compensated by monetary policy which is assumed to offset any tendency of deviation from full employment.¹⁰

Under such an implicit assumption of internal balance, the influence of monetary factors is not observable at all from the equation for the effect of a devaluation, because changes in monetary factors are assumed to happen implicitly. It is therefore rather uninteresting for the study of the rôle played by monetary factors.

B. Keynesian Neutral Monetary Policy

The alternative policy assumption made by Meade is that of a neutral policy combination, under which, in addition to the assumed absence of direct government efforts to influence imports, exports and domestic expenditures by commercial and fiscal policies, the domestic rate of interest is specifically assumed to be kept constant by the monetary authorities by maintaining the supply of money and credit infinitely elastic at the existing rate of interest. According to Meade, this neutral monetary policy is the type generally assumed in "what may be called Keynesian analysis." Indeed, it is tacitly taken for granted by all economists who apply the multiplier analysis to international trade without any explicit mention of monetary factors at all.

To distinguish this type of neutral monetary policy from the more orthodox type of neutral money policy, we shall call the former the Keynesian neutral monetary policy. The latter will be called the orthodox neutral monetary policy, which, in the absence of long-run growth of population and real productive capacity of the economy, may be described simply as the monetary policy that keeps the money supply of the economy constant.

When Keynesian neutral monetary policy is assumed for both countries A and B, r_a and r_b are *ex hypothesi* zero and equations for the demand for money, i.e., (13) and (14), can be omitted altogether in the solution for the change in the balance of trade t . Using Meade's own do-

¹⁰ In fact the solution (16) for t/e can be derived without reference to equations (3) and (4). The substitution of (3a) and (4a) for (3) and (4), respectively, merely affects the monetary changes that will be required for the maintenance of internal balance.

mestic expenditure functions, i.e., (3) and (4), together with the other seven equations (1), (2), (7)–(10), and (15), the result obtained is:

$$(17) \quad \frac{t}{e} = \frac{dT}{dE} = \frac{\lambda_a \lambda_b (\pi_{ab} + \epsilon_{ab} - 1) I}{\Delta_1},$$

where

$$(18) \quad \Delta_1 = \lambda_a \lambda_b \left\{ 1 + \frac{\pi_a(1 - \lambda_a)}{\lambda_a} + \frac{\pi_b(1 - \lambda_b)}{\lambda_b} + (\pi_{ab} + \epsilon_{ab} - 1) \left(\frac{\Pi_a}{\lambda_a \eta_a} + \frac{\Pi_b}{\lambda_b \eta_b} \right) \right\},$$

and Π_a and Π_b are the proportions of national expenditures (hence of national incomes, since with initial balance assumed to be zero, national incomes and expenditures are identical) initially spent on imports in countries A and B, respectively.¹⁷

Again the stability of the exchange rate requires that $t/e > 0$. However, since it is by no means unlikely that either one or both of the two propensities to hoard (i.e., λ_a and λ_b) should be negative, we need to be more specific about this stability condition. For it has been pointed out by Samuelson that for an equation system such as the nine equations (1)–(4), (7)–(10) and (15), to be dynamically stable, it is necessary that Δ_1 (which is the determinant of the system with the sign reversed) be positive too.¹⁸ Since it is impossible for the exchange rate to be stable when the whole system is dynamically unstable, we must conclude that it is necessary, for the stability of the exchange rate, that both (17) and (18) be positive.¹⁹ This is what Samuelson calls "the correspondence principle" which enables us to narrow down the necessary stability conditions in comparative static analysis with dynamic stability requirements.

¹⁷ The method of solution is simply successive substitution to eliminate all other variables than t and e . While the order in which these other variables are eliminated is quite immaterial, the particular procedure used was first to reduce the variables q 's, d 's, and z 's to expressions in terms of the q 's only, and then, making use of equations (3') and (4') in footnote 13, to solve for the q 's. Then t can be readily solved as $t = \lambda_a q_a$, using (3') in footnote 13 and assuming $r_a = 0$.

¹⁸ The number of equations being odd in this case, it is a necessary condition, for all the eigenvalues of the matrix of the system to be negative, that the determinant of the system be negative also [19] [20]. For an excellent lucid exposition of this principle, see also Baumol [4, pp. 373–78].

¹⁹ This point was glossed over by Meade, who, after canceling out $\lambda_a \lambda_b$ from both the numerator and the denominator, observed that the denominator (with $\lambda_a \lambda_b$ canceled out) "is certainly positive if $\epsilon_{ab} + \pi_{ab} > 1$, which we shall assume normally to be the case" [15, p. 50]. This point appears also to have been overlooked by Stuvell who, after obtaining a similar expression for the effect of a devaluation on the balance of payments, asserted that it is only the sign of the whole expression that matters for stability, regardless of the sign of the denominator. See [22, Ch. 4, esp. Math. App., pp. 233–35].

We shall leave for later discussion the more complicated cases where one or both of λ_a and λ_b might be negative, and for the time being concern ourselves with the simple case where they are both positive. As long as λ_a and λ_b are both positive, (17) and (18) will both be positive when $(\pi_{ab} + \epsilon_{ab} - 1) > 0$. In other words, the critical value for the sum of the elasticities of demand for imports in the two countries concerned is 1 in this Keynesian case of variable income, just as in the classical case of constant money incomes. The only difference is that the effect of devaluation will be much dampened by the changes in incomes and prices in both countries.

C. The Terms-of-Trade Effect

Let us now allow for the terms-of-trade effect upon aggregate expenditures by substituting equations (3a) and (4a) for (3) and (4) in the above system of nine equations. The solution for t/e then becomes:

$$(19) \quad \frac{t}{e} = \frac{dT}{dE} = \frac{\lambda_a \lambda_b (\epsilon_{ab} - 1) I}{\Delta_2}$$

where

$$(20) \quad \Delta_2 = \lambda_a \lambda_b \left\{ \left[1 + \frac{\pi_a(1 - \lambda_a)}{\lambda_a} + \frac{\pi_b(1 - \lambda_b)}{\lambda_b} \right] \left(1 + \frac{\Pi_a}{\eta_a} + \frac{\Pi_b}{\eta_b} \right) + (\epsilon_{ab} - 1) \left(\frac{\Pi_a}{\lambda_a \eta_a} + \frac{\Pi_b}{\lambda_b \eta_b} \right) \right\} .^{20}$$

Again Samuelson's correspondence principle would require that for the stability of the exchange market it is necessary that both (19) and (20) be greater than zero.

Again assuming for the time being that λ_a and λ_b are both positive, the crucial stability condition is now $(\epsilon_{ab} - 1) > 0$, i.e., the sum of the components of the pure substitution effect alone in the two elasticities of demand for imports must be greater than 1.

A comparison of (17) and (19) therefore confirms the findings of Harberger as well as Laursen and Metzler that when the effects of the terms of trade on aggregate expenditures are taken into consideration, the stability condition for the exchange rate becomes more stringent. The crucial stability condition implied in (19), when λ_a and λ_b are both assumed to be positive, i.e., $(\epsilon_{ab} - 1) > 0$, although apparently much simpler, is in fact identical to the stability conditions obtained by Harberger and Laursen and Metzler.²¹ This simpler form, however,

²⁰ The method of solution adopted here is again successive elimination, and the particular procedure is first to reduce the q 's, d 's, and i 's to expressions in terms of the q 's only and then solve for the q 's. The solution for t can then be obtained from those for q_a and q_b .

²¹ Harberger's stability condition is:

$$(\eta_1 + \eta_2) > (1 + c_1 + c_2),$$

shows more clearly the true magnitude of this bugbear, which, according to Laursen and Metzler, might require the crucial value of the sum of the two elasticities of demand for imports to "exceed unity by a considerable amount" [12, p. 296]. Equation (19) clearly shows that the result of allowing for the terms-of-trade effect on aggregate expenditures is merely to cancel out the components of the income effect in the crucial sum of the two elasticities of demand for imports. If the proportion of the national income spent on imports is high so that the terms-of-trade effect on expenditure may be expected to be of some significance, so also would be the income effect component in the elasticity of demand for imports which offsets it. Conversely, if the income effect component in the elasticity of import demand is negligible, then the terms-of-trade effect upon aggregate expenditure, that is supposed to cause difficulty, would also be of negligible significance. Therefore, the existence of the terms-of-trade effect upon aggregate expenditure is not likely to make the stability condition of the exchange rate so dangerously stringent as was at first suggested.

D. *Instability of the Keynesian Neutral Monetary Policy*

This observation about the significance of the terms-of-trade effect upon aggregate expenditure, however, is rather a digression from our main purpose in this paper, which is to achieve a synthesis of the elasticity and the absorption approaches and to highlight the role played by monetary factors. More pertinent to the main purpose of this paper are the following facts about the effect of a devaluation, as may be observed from (17) and (18) or (19) and (20):

1. It is impossible to dichotomize the effect of a devaluation into two clear-cut components, viz. a relative-price effect and an absorption or multiplier effect which constitutes a damping coefficient to the former; for as soon as we abandon the usual assumption of constant costs and prices of domestic products in both countries, the multiplier process

where η_1 and η_2 , the two elasticities of demand for imports, correspond to our $(\pi_a + \epsilon_a)$ and $(\pi_b + \epsilon_b)$, respectively; and c_1 and c_2 , the two propensities to import, correspond to our π_a and π_b , respectively. Thus his condition can be easily converted to our form, viz. $(\epsilon_{ab} - 1) > 0$ [7, p. 53, esp. fn. 13].

Laursen and Metzler's condition is given in the form:

$$\{(1 - w_1)(1 - w_2)v_1(\eta_1 + \eta_2 - 1) - s_1m_1(1 - w_2) - s_2m_2(1 - w_1)\} > 0,$$

where w_1 and w_2 are the propensities to spend, and hence $(1 - w_1)$ and $(1 - w_2)$ correspond to our λ_a and λ_b ; v_1 , the initial volume of imports (assumed to be the same for both countries), corresponds to our I ; η_1 and η_2 to our $(\pi_a + \epsilon_a)$ and $(\pi_b + \epsilon_b)$, respectively; m_1 and m_2 to our π_a and π_b , respectively; and s_1 and s_2 are partial derivatives of the aggregate expenditures with respect to the exchange rate for the two countries, respectively. In our notation, $s_1 = \partial D_a / \partial E$ and $s_2 = \partial D_b / \partial (1/E)$, which, according to equations (3a) and (4a) above, are respectively equal to $\lambda_a I$ and $\lambda_b I$. Thus written in our notation, Laursen and Metzler's condition becomes:

$$\{\lambda_a \lambda_b I (\pi_{ab} + \epsilon_{ab} - 1) - \lambda_a I \pi_a \lambda_b - \lambda_b I \pi_b \lambda_a\} = \lambda_a \lambda_b I (\epsilon_{ab} - 1) > 0,$$

which is exactly the same as implied in equation (19).

would again involve changes in relative prices and hence the relative-price effect on the trade balance.²² It is quite naive, therefore, to claim that the absorption approach is a superior new tool that could supersede entirely the relative-price approach.

2. The absorption approach is right in the case of a Keynesian neutral monetary policy in pointing out that unless there is a positive propensity to hoard in both countries, the balance of trade is unlikely to be stable even if the sum of the elasticities of demand for imports of the two countries is greater than 1. For if one of the propensities to hoard is negative while the sum of the elasticities of demand for imports is greater than 1, then (17) or (19) cannot be positive, when the necessary condition for the dynamic stability of the system is satisfied, i.e., when Δ_1 or $\Delta_2 > 0$.

If one of the propensities to hoard is zero, t/e would be zero, which implies that the effect of a devaluation would be zero. If both λ_a and λ_b are negative, it might seem that it is not impossible for both (17) and (18), or (19) and (20), to be positive as required for stability, and hence for the exchange rate to be stable, provided the absolute values of the negative λ_a and λ_b are large enough relatively to π_a and π_b , respectively, and η_a and η_b are also large. This is, however, illusory; for it must be remembered that Δ_1 (or Δ_2) > 0 is only a necessary condition for the dynamic stability of the system. By direct economic reasoning, it can be shown that there can be no stability for the system if the marginal propensities to spend in both countries are greater than 1. For with marginal propensities to spend greater than 1 and the supplies of money infinitely elastic at constant interest rates as assumed under the Keynesian neutral monetary policy, both countries would be unstable in isolation. It is therefore impossible that the two countries would become stable when joined together in mutual trade, since there is no possibility for the instability of the one being compensated by the stability of the other.²³

²² If we make the usual simplifying assumption that the elasticities of supply of products of A and B are both infinite, i.e., $\eta_a = \eta_b = \infty$, so that prices of domestic products will remain constant, then (19), for instance, can be simplified to:

$$(21) \quad \frac{t}{e} = \frac{\lambda_a \lambda_b (\epsilon_{ab} - 1) I}{\lambda_a \lambda_b + \pi_a (1 - \lambda_a) \lambda_b + \pi_b (1 - \lambda_b) \lambda_a}$$

In this case, it is indeed permissible to say that the relative-price effect determines the initial change in trade balance to which a damping coefficient, determined by propensities to hoard and import is to be applied. Too often, however, analyses of the effect of a devaluation stop with such simple cases.

²³ There seems to be a possibility that, if one of the propensities to hoard is negative and at the same time the sum of the elasticities of demand for imports is smaller than its critical value, the necessary condition for the stability of the dynamic system as well as the exchange rate might be satisfied. I am not sure, however, whether the sufficient condition for dynamic stability can be satisfied by such a combination since I have not worked out fully the sufficient

In the actual state of affairs, it is not at all unlikely that the marginal propensity to hoard, in the sense of 1 minus the marginal propensity to spend (on both investment and consumption), should be zero or negative. Thus it would appear that the stability of the exchange rate and the balance to trade is frequently in a very precarious state, even if the sum of the elasticities of demand for imports is well above 1.

We shall soon see, however, that only under the Keynesian neutral monetary policy that eliminates all the stabilizing influences of monetary factors is the stability of the exchange rate so precarious. Under a different monetary policy, say, the orthodox neutral monetary policy, it would not be necessary at all for the stability of the exchange rate and the dynamic system that the propensity to hoard of either country be greater than zero.

3. Furthermore, even if the sum of the elasticities of demand for imports is well above 1 and the marginal propensities to hoard of both countries are greater than zero, the exchange rate would at best be in a sort of "indifferent" or "neutral" equilibrium under the Keynesian neutral monetary policy, as soon as full employment is reached in the devaluing country. For when full employment is reached in country A, η_a approaches 0 as a limit and equations (17) and (19) would also approach zero as a limit, i.e.,

$$\frac{dT}{dE} = \frac{t}{e} \rightarrow 0, \quad \text{as } \eta_a \rightarrow 0;$$

for Δ_1 and $\Delta_2 \rightarrow \infty$, as $\eta_a \rightarrow 0$. In other words, the effect of devaluation on the balance of trade would be zero.²⁴ Thus if a freely fluctuating exchange rate system is adopted in a country with full employment and a Keynesian neutral monetary policy, any slight chance imbalance in trade could cause violent depreciation of the currency as the exchange rate would be entirely indeterminate.²⁵

condition for dynamic stability. Furthermore it seems that in such cases, the relative speed of price and income adjustments will have to be taken into consideration.

²⁴ The fact that the other country is fully employed is not a menace to the stability of the trade balance and exchange rate for a devaluing country. For under full employment, the elasticity of aggregate supply is likely to take on different values according to the direction in which aggregate demand is changing. The elasticity of aggregate supply is zero when confronted with an increase in aggregate demand, but it is not likely to be zero when confronted with a decrease in aggregate demand, particularly when money wages in the country concerned are rigid. Since the aggregate demand for the products of the country whose currency has relatively appreciated is likely to fall, the relevant elasticity of supply of its products is not likely to be zero, even when it is enjoying full employment.

²⁵ So far we have assumed a balanced trade position as the starting point. It has been pointed out by A. O. Hirschman that if there is a trade deficit to start with, the necessary and sufficient condition for a devaluation to improve the balance of trade becomes easier to fulfill [9]. However, in a sense, the condition for $dT/dE > 0$, assuming no initial trade deficit, is still the basic stability condition; for if $dT/dE > 0$ only when there is an initial trade deficit, but < 0 when

4. So far we have abstracted from money-wage changes due to trade union pressure and speculative capital movements. We have reached the conclusion that a full-employment economy with a Keynesian neutral monetary policy would imply instability in the balance of trade and the exchange rate without taking into consideration the possibilities of a wage-price spiral and a destabilizing speculative capital movement.

When these possibilities are taken into consideration, the instability implied in the Keynesian monetary policy will certainly be aggravated. I have shown elsewhere [23] [24] that the Keynesian monetary policy—i.e., the pegging of the interest rate at a fixed level with an infinitely elastic supply of money—provides precisely the monetary condition that is most conducive to the generation of a cumulative (self-aggravating) speculative capital movement; and that the instability of the French franc due to speculative capital flights in the 'twenties, a case which has been much cited as the evidence of the inherent instability of a floating exchange rate system, was really made possible and stimulated by the French monetary policy at the time of pegging the interest rate on the large amount of floating debt then in existence and being issued. Those economists with a Keynesian inclination, who decry the traditional reliance on exchange rate adjustment to restore the balance of payments, often forget that one of the chief reasons why devaluation may fail to improve the balance of trade, particularly in the postwar world of full or overfull employment, is precisely the monetary policy which they either take for granted or are actively advocating.

E. Orthodox Neutral Money Policy

That monetary factors can play a vital stabilizing role in the exchange market can be clearly shown by substituting the orthodox neutral money policy as defined above for the Keynesian neutral monetary policy. Under the assumption of an orthodox neutral money policy, changes in money supply, i.e., m_a and m_b , may be put equal to zero, whereas interest rates would be permitted to change freely. The effect of a devaluation can then be obtained by solving the system of 11 equations, consisting either of (1)–(4), (7)–(10), and (13)–(15) or (1), (2), (3a), (4a), (7)–(10) and (13)–(15), for t in terms of e after putting m_a and m_b equal to zero.

The result obtained with the first set of equations, i.e., the set of which there is no initial deficit, then the country concerned may use devaluation to improve its balance of trade to some extent when it has an initial trade deficit, but it cannot use devaluation to eliminate its deficit; for when its deficit gets smaller, further devaluation may begin to have an adverse effect on its trade balance. If $dT/dE > 0$ when there is an initial deficit, but equals 0 when trade is balanced, then theoretically it is not impossible for the country eventually to eliminate its initial trade deficit by keeping on devaluing its currency. But once the trade deficit is eliminated, the momentum of devaluation may carry it further and further; for then the exchange rate becomes indeterminate (being in an indifferent equilibrium).

equations that do not allow for the terms-of-trade effect on aggregate expenditures, is:

$$(22) \quad \frac{t}{e} = \frac{dT}{dE} = \frac{\alpha\beta(\pi_{ab} + \epsilon_{ab} - 1)I}{\Delta_1}$$

where

$$(23) \quad \Delta_1 = \alpha\beta \left\{ 1 + \frac{\pi_a(1-\alpha)}{\alpha} + \frac{\pi_b(1-\beta)}{\beta} \right. \\ \left. + (\pi_{ab} + \epsilon_{ab} - 1) \left(\frac{\Pi_a}{\alpha\eta_a} + \frac{\Pi_b}{\beta\eta_b} \right) \right\}$$

$$(24) \quad \alpha = \lambda_a + \left(1 + \frac{1}{\eta_a} \right) \frac{\rho_a \xi_a}{\zeta_a}$$

and

$$(25) \quad \beta = \lambda_b + \left(1 + \frac{1}{\eta_b} \right) \frac{\rho_b \xi_b}{\zeta_b} .^{28}$$

Equations (22) and (23) are of exactly the same form as (17) and (18) respectively; the only difference is that in (22) and (23) α and β are substituted for λ_a and λ_b of (17) and (18). The terms α or β may be regarded as consisting of two components: First, there is the usual marginal propensity to hoard directly induced by real-income changes (viz., λ_a or λ_b , respectively). Secondly, we have the interest-induced marginal propensity to hoard brought about by changes in the interest rate resulting from changes in the demand for transaction balances in connection with changes in money income, viz.,

$$\left(1 + \frac{1}{\eta_a} \right) \frac{\rho_a \xi_a}{\zeta_a} \quad \text{or} \quad \left(1 + \frac{1}{\eta_b} \right) \frac{\rho_b \xi_b}{\zeta_b} ,$$

respectively. As long as the interest-elasticity of the demand for money is not infinitely large (in absolute value) and the interest elasticity of aggregate expenditure is not zero, the interest-induced marginal propensity to hoard is always positive. Moreover, if there is a practical limit to the velocity of circulation of money, ζ_a or ζ_b would approach zero as the limit of the velocity of circulation is gradually approached.

Thus unless we start from a position deep down in the liquidity trap, the second component is bound eventually to overwhelm the first, regardless of whether the latter is positive or negative. The danger of in-

²⁸ The procedure adopted here is again to reduce the q 's, r 's, d 's and i 's to expressions in terms of the q 's only and then solve for q_a and q_b . The solution for t is then obtained from those for q_a and q_b .

stability due to a negative propensity to hoard (or a greater than unity propensity to spend), which is after all quite a normal phenomenon, will, therefore, be quite under control if an orthodox neutral monetary policy is adopted instead of the Keynesian neutral monetary policy.

Furthermore, and what is more important for the current world, full employment at home need not imply instability in the balance of trade and the exchange rate. For when full employment is reached in country A, and hence η_a approaches zero, t/e would not approach zero as under the Keynesian neutral monetary policy. For equations (22)–(25) indicate that, as $\eta_a \rightarrow 0$,

$$(26) \quad \frac{t}{e} \rightarrow \frac{(\pi_{ab} + \epsilon_{ab} - 1)I}{1 - \pi_a + \frac{\pi_b(1 - \beta)}{\beta} + (\pi_{ab} + \epsilon_{ab} - 1)\left(\frac{\Pi_a \xi_a}{\rho_a \xi_a} + \frac{\Pi_b}{\beta \eta_b}\right)}$$

since

$$\alpha = \lambda_a + \left(1 + \frac{1}{\eta_a}\right) \frac{\rho_a \xi_a}{\xi_a} \rightarrow \infty, \quad \alpha \eta_a \rightarrow \frac{\rho_a \xi_a}{\xi_a}, \quad \text{as } \eta_a \rightarrow 0.$$

The limit for t/e as $\eta_a \rightarrow 0$ will be greater than zero as long as the primary stability condition $\pi_{ab} + \epsilon_{ab} > 1$ is fulfilled. Thus full employment at home and a marginal propensity to spend equal to or greater than 1 are no threat to the stability of the balance of trade and the exchange rate under an orthodox neutral money policy.²⁷

The introduction of the effect of terms-of-trade changes on aggregate expenditures would make no difference to the substance of the above conclusions. In addition it may be shown that the significance for exchange rate stability of the terms-of-trade effect on expenditure is less under an orthodox neutral money policy than under a Keynesian monetary policy. For by substituting equations (3a) and (4a) for (3) and (4) in the system and putting m_a and m_b equal to zero as before, we get

$$(27) \quad \frac{t}{e} = \frac{ab \left(\pi_{ab} + \epsilon_{ab} - 1 - \frac{\lambda_a \pi_a}{\alpha} - \frac{\lambda_b \pi_b}{\beta} \right) I}{\Delta_4}$$

where

$$(28) \quad \Delta_4 = \alpha \beta \left\{ 1 + \frac{\pi_a(1 - \alpha)}{\alpha} + \frac{\pi_b(1 - \beta)}{\beta} \right\}$$

²⁷ I have shown elsewhere [23, pp. 410–12] that so long as the interest elasticity of supply of money is zero (as is implied by the orthodox neutral monetary policy) and the interest elasticity of demand for money is fairly small, as it would be when the prevailing interest rate is well above the minimum set by the liquidity trap, it is highly unlikely that the speculative demand for foreign exchange will be unstable or self-aggravating.

$$+ \left[\pi_{ab} + \epsilon_{ab} - 1 + \lambda_a(1 - \pi_{ab}) - \frac{\pi_b(\lambda_a - \lambda_b)}{\beta} \right] \frac{\Pi_a}{\alpha \eta_a} \\ + \left[\pi_{ab} + \epsilon_{ab} - 1 + \lambda_b(1 - \pi_{ab}) - \frac{\pi_a(\lambda_b - \lambda_a)}{\alpha} \right] \frac{\Pi_b}{\beta \eta_b} \}^{28}$$

Comparison of equation (27) with (22) again indicates that, as pointed out by Harberger, and Laursen and Metzler, if λ_a and λ_b are positive so that a worsening of the terms of trade has a stimulating effect on the aggregate spending of the country concerned, the terms-of-trade effect upon aggregate expenditure would make the stability condition for the exchange rate more stringent. On the other hand, comparison of (27) with (19) shows that the significance for exchange stability of the terms-of-trade effect on expenditure is clearly reduced under an orthodox neutral monetary policy. For whereas under the Keynesian neutral monetary policy the effect of the terms-of-trade changes on expenditure would exactly cancel out the income-effect components of the elasticities of demand for imports, thus making the stability condition $\epsilon_{ab} > 1$, under an orthodox neutral money policy it will normally fall short of doing this. Given that α and β are both positive, which is practically always ensured under such a monetary policy, the crucial stability condition for the balance of trade is now:

$$(29) \quad \left(\pi_{ab} + \epsilon_{ab} - 1 - \frac{\lambda_a \pi_a}{\alpha} - \frac{\lambda_b \pi_b}{\beta} \right) > 0.$$

Since α and β are normally greater than λ_a and λ_b , respectively, the influence of the terms-of-trade effect on expenditure will not be big enough to offset completely the income-effect components in the elasticities of import demands. Thus the terms-of-trade effect on expenditure appears to be a much exaggerated bugbear in the eyes of elasticity pessimists.

It also can be shown that under an orthodox neutral money policy full employment at home will cause no difficulty to exchange rate stability even if the terms-of-trade effect on expenditure is allowed for. For as $\eta_a \rightarrow 0$, equation (27) becomes:

$$(30) \quad \frac{t}{e} \rightarrow \frac{\left(\pi_{ab} + \epsilon_{ab} - 1 - \frac{\lambda_b \pi_b}{\beta} \right) I}{\Delta_b},$$

where

$$(31) \quad \Delta_b = 1 - \pi_a + \frac{\pi_b(1 - \beta)}{\beta} + \left[\pi_{ab} + \epsilon_{ab} - 1 + \lambda_a(1 - \pi_{ab}) \right]$$

²⁸ The procedure adopted here is similar to the one used in the preceding case.

$$-\frac{\pi_b(\lambda_a - \lambda_b)}{\beta} \left] \frac{\Pi_a \xi_a}{\rho_a \xi_a} + [\pi_{ab} + \epsilon_{ab} - 1 + \lambda_b(1 - \pi_{ab})] \frac{\Pi_b}{\beta \eta_b}.$$

When λ_a is positive, the stability condition implied in (30), i.e.,

$$\left(\pi_{ab} + \epsilon_{ab} - 1 - \frac{\lambda_b \pi_b}{\beta} \right) > 0,$$

is certainly fulfilled, when that implied in (27) is fulfilled.

When $\lambda_a < 0$, it implies that the terms-of-trade effect on expenditure in country A will give a boost to, instead of detracting from, the stability of the balance of trade. Equation (30) would then merely indicate that when full employment at home is attained, this possible boost to stability would disappear. In any case, the stability condition

$$\left(\pi_{ab} + \epsilon_{ab} - 1 - \frac{\lambda_b \pi_b}{\beta} \right) > 0$$

is not substantially different from the traditional Marshall-Lerner stability condition of $(\pi_{ab} + \epsilon_{ab} - 1) > 0$.²⁹

III. Concluding Remarks

We conclude that the absorption approach to the analysis of the effects of devaluation has contributed to our understanding of the problem only in emphasizing the fundamental facts that a positive trade balance implies the presence of hoarding (nonspending) of incomes or credit contraction and that a negative trade balance implies the presence of dishoarding or credit expansion, and that a more comprehensive analysis, including in particular an analysis of the effect on income and expenditure, is needed than is implied in the classical elasticity approach. As an independent analytical tool, in substitution for the tra-

²⁹ In fact a comparison of (22) and (23) with (17) and (18), or of (27) and (28) with (19) and (20), shows that the dampening influence of income variation on the effect of a devaluation is generally reduced by the adoption of an orthodox, instead of a Keynesian, neutral monetary policy.

In the extreme case, where the interest elasticity of demand for money is zero in both countries (i.e., $f_a = f_b = 0$, which implies that the velocities of circulation of money are constant in both countries), α and β would approach infinity. Then (22), (26), (27) and (30) would all become the same as (16); i.e.,

$$\frac{t}{s} = \frac{(\pi_{ab} + \epsilon_{ab} - 1)I}{1 - \pi_a - \pi_b},$$

which is the solution we obtained under the assumption of internal balance in both countries (see above p. 923).

Thus the neglect of the dampening influence of income variation by the neoclassical economists is probably due partly to their customary assumption of zero interest elasticity of demand for money (or constant velocity of circulation of money). Alexander's characterization of the neoclassical elasticity approach as pure tautological theorizing is, therefore, quite unjustified.

ditional elasticity approach, however, it is quite inadequate; for we have shown that not only is the primary effect of a devaluation determined by the elasticities, but the secondary damping factor also depends on the relevant elasticities, once domestic prices are recognized as liable to change with the changes in income.

The significance of monetary factors, the role of which is clearly indicated by the fundamental identity of the absorption approach, is however entirely obliterated by the usual assumption of constant interest rates supported by infinitely elastic supply of or demand for money with respect to the interest rate, an assumption explicitly or implicitly made in practically all modern Keynesian analyses. Such a monetary assumption, however, would imply instability in the exchange rate as soon as full employment is reached at home, even without allowing for the destabilizing influence of speculative capital movements and the possibility of a wage-price spiral. To take for granted such a monetary policy may have been justified in the deep depression years of the 'thirties, but it is hardly appropriate in the current world of prosperity and high-level employment.

It is high time that we abandoned this ubiquitous underlying assumption in our aggregate analysis lest we should scare ourselves out of our own wits in "discovering" dangerous instability lurking everywhere in our economy (notably for example, the supposed razor-edge instability of our growth path) and thus clamor for more and more government controls on our economic life.

REFERENCES

1. S. S. ALEXANDER, "Effects of a Devaluation on a Trade Balance," *Internat. Mon. Fund Staff Papers*, Apr. 1952, 2, 263-78.
2. ———, "Effects of a Devaluation: A Simplified Synthesis of Elasticities and Absorption Approaches," *Am. Econ. Rev.*, Mar. 1959, 49, 23-42.
3. W. R. ALLEN, "A Note on the Money Income Effect of Devaluation," *Kyklos*, 1956, 9, 372-80.
4. W. J. BAUMOL, *Economic Dynamics*, 2nd ed. New York 1959.
5. H. BREMS, "Devaluation, A Marriage of the Elasticity and Absorption Approaches," *Econ. Jour.*, Mar. 1957, 67, 49-64.
6. A. J. BROWN, "Trade Balances and Exchange Stability," *Oxford Econ. Papers*, No. 6, Apr. 1942, 57-75.
7. A. C. HARBERGER, "Currency Depreciation, Income and the Balance of Trade," *Jour. Pol. Econ.*, Feb. 1950, 58, 47-60.
8. ———, "Pitfalls in Mathematical Model Building," *Am. Econ. Rev.*, Dec. 1952, 42, 856-65.
9. A. O. HIRSCHMAN, "Devaluation and Trade Balance—A Note," *Rev. Econ. Stat.*, Feb. 1949, 31, 50-53.
10. H. G. JOHNSON, "Towards a General Theory of the Balance of Payments," *International Trade and Economic Growth*, London 1958, Ch. 6.

- 10A. ———, "The Taxonomic Approach to Economic Policy," *Econ. Jour.*, Dec. 1951, 61, 812-32.
11. R. W. JONES, "Depreciation and the Dampening Effect of Income Changes," *Rev. Econ. Stat.*, Feb. 1960, 42, 74-80.
12. S. LAURSEN AND L. A. METZLER, "Flexible Exchange Rates and the Theory of Employment," *Rev. Econ. Stat.*, Nov. 1950, 32, 281-99.
13. F. MACHLUP, "Relative Prices and Aggregate Spending in the Analysis of Devaluation," *Am. Econ. Rev.*, June 1955, 45, 255-78.
14. ———, "The Terms of Trade Effects of Devaluation upon Real Income and the Balance of Trade," *Kyklos*, 1956, 9(4), 417-52.
15. J. E. MEADE, *The Balance of Payments, Mathematical Supplement*. London 1951.
16. M. MICHAELY, "Relative Prices and Income Absorption Approaches to Devaluation: A Partial Reconciliation," *Am. Econ. Rev.*, Mar. 1960, 50, 144-47.
17. I. F. PEARCE, "A Note on Mr. Spraos' Paper," *Economica*, May 1955, N.S. 22, 147-51.
18. J. ROBINSON, "The Foreign Exchanges," *Essays in the Theory of Employment*, New York 1937, Pt. III, Ch. 1, reprinted in *Readings in the Theory of International Trade*, ed. H. S. Ellis and L. T. Metzler, Philadelphia 1949, pp. 83-103.
19. P. A. SAMUELSON, "The Stability of Equilibrium: Comparative Statics and Dynamics," *Econometrica*, Apr. 1941, 9, 97-120.
20. ———, *Foundations of Economic Analysis*. Cambridge 1953.
21. J. SPRAOS, "Consumers' Behaviour and the Conditions for Exchange Stability," *Economica*, May 1955, N.S. 22, 137-47.
22. G. STUVEL, *The Exchange Stability Problem*. Oxford 1951.
23. S. C. TSIANG, "A Theory of Foreign Exchange Speculation under a Floating Exchange System," *Jour. Pol. Econ.*, Oct. 1958, 66, 399-418.
24. ———, "Floating Exchange Rate System in Countries with Relatively Stable Economies: Some European Experience After World War I," *Internat. Mon. Fund Staff Papers*, Oct. 1959, 7, 244-73.
25. W. H. WHITE, "The Employment-Insulating Advantages of Flexible Exchange Rates: A Comment on Professors Laursen and Metzler," *Rev. Econ. Stat.*, May 1954, 36, 225-28.

DIFFERENTIAL CHANGES IN THE PRICES OF CONSUMERS' AND CAPITAL GOODS

By R. A. GORDON*

This paper is concerned with some of the implications of a phenomenon which seems largely to have escaped the attention of all but a few economists. There has apparently been, for half a century or more, a secular tendency in the United States and some other countries for capital-goods prices to rise faster than those of consumers' goods.

If we can believe the figures, the contrast in the behavior of these sector price levels has been quite striking, particularly for the period since the 1920's. The contrast also shows up in earlier decades in the U.S. figures. The tendency for capital-goods prices to rise faster than those of consumers' goods is not confined to the United States. It is also evident in some, although not all, other advanced countries for which data are available.

These differential price trends raise a number of significant questions, of which the most important are probably the following: (1) To what extent do we have here a real phenomenon, and to what extent are we dealing merely with a statistical illusion resulting from defects inherent in the available price indices? (2) If we have to accept these differential trends as actually existing, how do we account for them? (3) What are the more important economic implications of such differential price behavior, if in fact it exists—for example, for multiplier analysis, the relation between capital and output, etc.? (4) And, finally, if it is argued that these differential price trends are largely a statistical illusion, what does this imply regarding the actual growth of output and the capital stock and about the past behavior of prices? The "real" variables we derive from the national income accounts are merely estimates of money expenditures deflated by the price indices that have shown these different trends. To deny the existence of these differential price trends is to deny the validity of the deflated estimates of the components of the GNP on which we all so heavily rely.

The present paper will have something to say about each of these questions. But first of all we shall examine the evidence that suggests that these differential price trends do exist.

*The author is professor of economics, University of California, Berkeley. Financial assistance from the Institute of Business and Economic Research at that institution is gratefully acknowledged. I have also had the benefit of helpful suggestions from friends and colleagues, both at Berkeley and elsewhere. The list of names is too long to include here.

I. What the Data Show

Table 1 presents the relevant data for the United States. Kuznets' implicit price deflators for consumers' goods and for fixed capital formation, as well as for total gross national product, are shown in the

TABLE 1—PRICE DEFLATORS FOR COMPONENTS OF GROSS NATIONAL PRODUCT, UNITED STATES, 1869-1959^a
(1929=100)

Period	Price Deflators for				Ratio: P_t/P_o (1929=100)
	Consumers' Goods (P_c)	Gross Fixed Capital Formation ^b (P_k)	Government Expenditures (P_g)	GNP (P)	
Kuznets:					
1869-78	69.8	54.0	—	67.5	77.4
1879-88	55.9	46.9	—	54.5	83.9
1889-98	49.0	41.4	—	47.3	84.5
1899-1908	53.2	48.4	—	52.3	91.0
1909-18	71.1	64.3	—	70.1	90.4
1919-28	102.5	101.1	—	102.9	98.6
1929-38	82.8	92.6	—	84.2	111.8
1939-48	109.8	128.3	—	112.7	116.8
1944-53	139.4	172.3	—	145.4	123.6
Commerce:					
1929	100.0	100.0	100.0	100.0	100.0
1939	79.9	95.4	96.5	83.8	119.5
1949	144.0	189.2	185.8	153.7	131.4
1959	176.0	262.0	264.6	196.2	148.9

^a Source: The decade averages for 1869-1953 are from Simon Kuznets, *Supplement to Summary Volume on Capital Formation and Financing*. Part B. *Estimates for Overlapping Decades, 1869-1953*. (National Bureau of Economic Research, n.d., mimeographed). The annual Department of Commerce estimates are taken from the *Economic Report of the President*, January 1961. In the case of the Kuznets figures, I derived the deflators by dividing his estimates for each component in current prices by the corresponding ones in constant prices. The Department of Commerce presents its implicit deflators on a 1954 base, and these were converted to a 1929 base. Since no separate deflator was given for fixed capital formation but only for construction and producers' durables separately, I added the estimates for these latter two components in both current and constant prices and divided one by the other to secure the implicit price deflator for the sum of the two. This procedure was also followed with Kuznets' estimates for construction and producers' durables.

^b Includes construction and producers' durable goods but excludes net change in inventories and foreign investment. Kuznets' figures in this column include government construction; those of the Department of Commerce do not.

form of decade averages for the period 1869-1953. In addition, we present the deflators of the Department of Commerce—including that for government expenditures—for selected years since 1929.¹

¹ In the case of both the Kuznets and Department of Commerce data, we have excluded net change in inventories and net foreign investment from the capital formation esti-

If we can believe these price indices, the upward trend in the ratio of capital-goods prices (P_k) to those of consumers' goods (P_c) goes back as far as Kuznets has carried his data. The upward trend in this ratio seems to have accelerated from about the first world war on, and particularly after the 1920's. If we confine our attention to this century, the rise in the ratio was particularly marked in the decade 1899-1908, during and immediately following the first world war, during the 1930's, and after the second world war. The movement in the ratio of P_k to P_c for the entire period since the 1870's is traced out in Figure 1.

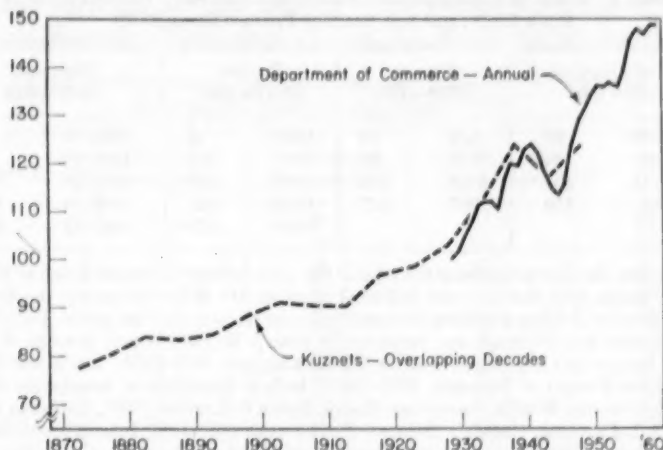


FIGURE 1. RATIO OF PRICE DEFLATOR FOR FIXED CAPITAL FORMATION TO THAT FOR CONSUMERS' GOODS, 1869-1954 (1929 = 100)*

* For description and source of data, see text and Table 1.

The cumulative effect of these differential price trends is substantial. If the figures are to be believed, capital goods were about 50 per cent more expensive in terms of consumers' goods in 1959 than they were in 1929, and about 75 per cent more expensive, relatively, than in the 1890's.

These differential trends are not merely a phenomenon of generally inflationary periods. Thus the ratio of P_k to P_c tended to rise whether the trend in the general price level was upward or downward. The marked rise in the ratio during the depression of the 'thirties is particularly to be noted; relatively it was even greater than during the decade of the 1950's.

mates. Thus "fixed capital formation" refers to the sum of construction and producers' durable goods. The fact that government construction is included in Kuznets' estimates of capital formation but is included in the Commerce estimates of government expenditures seems to make little difference, since, for the period for which they overlap, the two sets of deflators for capital goods are quite close together. See Figure 1.

The phenomenon with which we are concerned is not confined exclusively to the United States. Thus for four countries with long price series (Table 2), the ratio of P_k to P_c displays an upward trend for a number of decades before the second world war.² Since the 1930's, experience has varied. Other OEEC countries, in addition to the 4 listed in Table 2, also show divergent trends since the 1930's and particularly since the war. In this respect, Table 3 is of some interest for the recent information it provides. During 1953-59, the ratio of P_k to P_c rose in

TABLE 2—RATIO OF CAPITAL-GOODS PRICES TO CONSUMERS' GOODS PRICES IN FOUR COUNTRIES FOR VARIOUS PERIODS SINCE 1870*

United Kingdom (1929 = 100)		Canada (1929 = 100)		Sweden (1913 = 100)		Denmark (1929 = 100)	
1870-79	87	1870	88	1873	92	1870-79	74
1890-99	84	1890	95	1897	101	1890-99	73
1924-33	103	1939	110	1926	110	1921-29	103
1946-52	150	1953	127	1938	127	1930-39	121
				1948	109	1947-52	123

* In all cases, the figures represent the ratio of the price deflator for capital goods to that for consumers' goods, with the base year indicated taken as 100. Where necessary, the deflators were computed by dividing estimates in current prices by those in constant prices. Data for the United Kingdom and Denmark are, respectively, from J. B. Jefferys and Dorothy Walters, "National Income and Expenditures of the United Kingdom, 1870-1952," and Kjeld Bjerke, "The National Product of Denmark, 1870-1952," both in International Association for Research in Income and Wealth, *Income and Wealth*, Series V (London, 1955). Canadian figures are from O. J. Firestone, *Canada's Economic Development, 1867-1953*, International Association for Income and Wealth, *Income and Wealth*, Series VII (London, 1958), p. 178. The Swedish figures are from O. Johannsson, "Economic Structure and Growth in Sweden, 1861-1953," paper presented at the Sixth European Conference of the International Association for Research in Income and Wealth in 1959 (mimeographed).

only four of the ten European countries listed—Belgium, Germany (by only a small amount), The Netherlands, and Norway.³ In none was the differential quite as large as in the United States or Canada. Another striking feature of the table is the extent to which the price deflator for government services in all countries has risen faster than that for private consumption. As a result the total GNP deflator rose substantially more than that for private consumption in most countries. The particular multiplier effects of differential price trends described in section IV of this paper hold for government expenditures as well as for private capital formation.

² Kuznets' data show a secular rise in the ration of P_k to P_c in Norway also. However, the ratio declined in Italy (1861-1955) and showed no appreciable rise in Germany before 1913. Further information on differential price trends in other countries has been compiled by Kuznets [10, pp. 13-15]. European data for 1938-1955 are available in [13].

³ The number would have been larger had we gone back to, say, 1947 or 1938. See the OEEC data in [13].

The P_k/P_c series for the United States plotted in Figure 1 seems to reveal the kind of intermediate secular movement associated particularly with the name of Simon Kuznets. Thus we can discern in Figure 1 a "long swing" from the early 'seventies to the 'nineties, another from the 'nineties to the first world war, a third from 1909-18 to 1919-28 or 1924-33, and a final one ending in the second world war. So far as I can make out from a quick comparison with Kuznets' latest data, the swings in P_k/P_c correspond very roughly in timing with those in GNP until the 1920's, but not after that. Beyond this, there does not seem to be any particularly close relation to the swings in capital formation shown in Kuznets' latest data [9, Ch. 7]. But investigation of these

TABLE 3—PERCENTAGE CHANGES IN IMPLICIT PRICE INDICES FOR GNP COMPONENTS, SELECTED COUNTRIES, 1953-59^a

Country	Private Consumption	Public Consumption	Gross Capital Formation	GNP
Austria	12.8	37.0	7.9	18.4
Belgium	8.9	25.0	15.7	13.0
Denmark	16.2	28.3	12.6	21.5
France	33.5	48.6	26.2	34.3
Germany	11.9	19.4	12.4	14.6
Italy	8.7	23.1	6.2	9.8
Netherlands	16.6	39.8	22.4	21.4
Norway	15.8	31.4	25.5	19.6
Sweden	16.7	26.9	12.2	16.8
United Kingdom	16.5	34.0	16.2	20.6
Canada	11.1	30.9	19.9	16.2
United States	9.6	23.6	17.8	13.6

^a Source: William Fellner et al., *The Problem of Rising Prices* (OEEC, Paris, 1961), pp. 113-15.

long swings is a task that must be left to others. Our primary interest is in the long-run trend that underlies these shorter movements.

At least since 1929, the price level associated with government expenditures in the United States has risen as rapidly as the prices of capital goods. (See Table 1.) Thus the price level associated with total nonconsumption expenditures has risen far more than that associated with private consumers' spending. Table 3 suggests that the same sort of development has also been occurring in other countries, at least in recent years. The dynamic implications of these differential price trends will be considered later in this paper.

II. A Statistical Illusion?

Now we have to ask our first main question: May not these differential price trends be largely a statistical illusion? Widespread concern has been expressed in recent years about the upward bias inherent in

official price indices. Is this upward bias, by the nature of the case, particularly characteristic of index numbers of capital-goods prices, so that we must discount all or most of the difference in price trends evident in Table 1 and Figure 1?

To deal with this question, we must differentiate between the two components of gross (fixed) capital formation: producers' durable goods and construction. The chief reason for suspecting marked upward bias in the price indices is different for these two categories. In the case of producers' durables, we have the kind of quality problem that has been extensively discussed in the recent literature. Producers' durable goods are generally highly fabricated; specifications change over the years, usually in such a way as to improve the quality of the product; and new products are constantly being introduced. Recorded prices are not adjusted for this improvement in quality. Hence the rise in price per quality unit (or per efficiency unit, since we are talking about capital goods) is less than the rise in price per physical unit as ordinarily measured.

An additional problem arises in the case of construction. While the quality problem as defined above also presents difficulties in the case of buildings, more serious is the fact that most indices of construction costs are primarily indices of input prices, not output prices. So-called construction-cost indices are typically averages of wage rates and building-material prices with fixed weights. Usually little or no allowance is made for increased productivity of the input factors.⁴ Hence such an index does not measure the change in the actual cost (price) of a particular type of building. Instead, it measures changes in what such a building *would have* cost if it had always required the same amount of labor and materials.⁵

Let us consider first the question of productivity trends in construction and the resulting relationships between input prices and the actual costs of completed buildings. The evidence that I have examined suggests that the available construction-cost indices probably do not exaggerate the long-run upward trend in actual building costs as much as is frequently assumed. While some of the rise almost certainly has to be discounted, there are substantial reasons for believing that, over the

⁴ Allowance for improvements in productivity does get into some of the construction-cost indices, particularly those of the Bureau of Public Roads and the Interstate Commerce Commission. The Department of Commerce [19, pp. 90-92] also reports that some adjustment for productivity changes is incorporated in some of the private building-cost indexes.

⁵ For a recent discussion of the limitations of current index numbers of construction costs, see Appendix B of the report of the "Stigler Committee" [15, pp. 87-93]. See also Appendix E of Kendrick's study referred to in footnote 27, which appeared only after this paper was completed.

last half century or more, actual costs of construction have risen more than the prices of, for example, consumers' goods. The more important evidence in support of this conclusion is as follows:

1. One study [6, pp. 344-58] found that a specially constructed index of actual house prices rose by about the same amount as a residential construction-cost index over the period 1890-1934.

2. A completely independent study by Colean and Newcomb [3, pp. 71-73, 247-48] found that the *Engineering News-Record* fixed-weight index of building costs rose no more during the period 1913-51 than an average of the indices of *actual* building costs compiled by four construction firms.

3. Prices of building materials, particularly lumber, have risen significantly more than the index of all wholesale prices, and it is unlikely that all of this differential increase in prices has been offset by savings in the use of materials.

4. There is good reason to believe that, over the last half century or more, the recorded rise in union wage rates in the building trades—the wage component in most fixed-weight construction-cost indices—does not seriously exaggerate the rise in unit labor costs, except in heavy engineering projects. Labor productivity in building construction has apparently risen relatively slowly over most of the period covered by our figures, and the trend in union wage rates understates the rise in actual hourly earnings.⁹

5. Improvements in productivity have been retarded by union restrictions and building regulations. Also, some "external diseconomies" have been at work. Thus one factor in the rise in building costs has been "the rapidly increasing complexity of the urban environment resulting from greater concentration of population on the one hand and higher standards of health and safety on the other" [3, p. 62].

6. Where extensive mechanization has been introduced, some of the resulting labor saving has been offset by an increase in cost per unit of output for such items as interest, depreciation, fuel and power, etc. [14, pp. 52-53].

7. Raymond Powell [14, pp. 46-47], after a careful survey of the evidence for the United States (largely from the same sources that we have cited), reaches the following conclusion:

... there has been little divergence in the *trends* of input and output prices in residential and nonresidential building construction in the U.S. over the periods covered. In railway and highway construction, on the

⁹ Colean and Newcomb [3, p. 69] cite an estimate by the American Appraisal Company that actual labor costs on several types of building in 1948 were 600 to 700 per cent of their 1913 levels for the same type of work. This was more than the rise in wage rates in the same period.

other hand, Chawner's comparisons [2] suggest a long-term fall in product prices relative to input prices. . . . Taken together, these findings suggest some downward trend in output prices relative to input prices for construction as a whole. . . .

As Powell goes on to point out [14, p. 47], the Department of Commerce uses the ICC and Bureau of Public Roads deflators, which do allow for improvements in productivity in railroad and road construction. Yet the Department of Commerce index for construction as a whole, which includes these "output-price" deflators for railroad and road construction, does not diverge significantly from a simple input-price deflator. "The obvious explanation is that building construction, in which the trends of input and output prices appear to have been similar, account for the greater part of total construction. . . ."

Although all of this does not constitute proof, it does suggest that the differential trend in construction costs cannot be completely discounted. While the implicit deflator for construction is more a measure of input than of output prices, some limited allowance for productivity changes has been made in recent decades; and, as explained in the preceding paragraphs, there are a number of reasons for believing that, over the past half century or more, an index of input prices does not so seriously overstate the rise in building costs (apart from heavy engineering projects) that we must dismiss the entire difference in trends shown in Table 1 and Figure 1.⁷

Now we must return to the more intractable problem of quality changes in the final product, in the case of both producers' durables and construction. Granted the story told by the price indices, may not the differential increases in prices of capital goods be largely or completely offset by quality improvement, so that the price per efficiency unit has not increased relative to the prices of consumers' goods?⁸

Although we cannot provide a satisfactory quantitative answer to this question, it is clear that there have been substantial quality improvements in capital goods, particularly in those that we call pro-

⁷ We have confined our discussion entirely to long-run trends. There is little question that the weaknesses in construction-cost indices usually cited do make these indices more inflexible in the short run than is the case with actual building costs.

⁸ This question might be broken into two parts. First, do quality improvements directly explain the differential rise in capital-goods prices, in the sense that the real cost of making these improvements has been greater than that of making the improvements that have occurred in consumers' goods? Second, even if the actual cost of making the improvements does not fully explain the differential rise in capital-goods prices, nonetheless might not the differential price rise have been offset by the increased productivity of capital goods? Technical advance can improve the quality of a product even though additional resources are not invested in it. I have serious doubts that a price index should try to allow for the second type of quality change.

ducers' durables. There is no doubt that the increased dearthness of capital goods relative to consumers' goods has been at least partially offset by quality improvements. As we shall see in the next section, however, the differential rise in capital-goods prices is due chiefly, although not exclusively, to the marked upward trend in construction costs, and it may be that improvements in the quality (productive efficiency) of capital in the form of construction have not fully compensated for the differential rise in building costs. (This may help to explain the increase in the ratio of producers' durables to construction that we shall note at a later point.) It may well be, however, that the relative cost per efficiency unit of producers' durable goods has fallen sufficiently to offset the possible rise in the relative cost per efficiency unit of construction.

Our findings regarding the increasing relative dearthness of capital goods, as these goods are conventionally measured, suggest that more work on the changing quality characteristics of the capital stock is badly needed. What we think we now know about trends in the ratio of real investment to real income, in the capital-output ratio, and in other significant economic relationships depends upon the use of deflating indices which make no allowance for quality improvements. If such an allowance were made, these trends would be different from those that we now observe.

Merely to recognize that a problem exists is as far as we can carry the question of quality changes in this paper. Our purpose thus far has been merely to demonstrate that, *as conventionally measured*, real investment has been becoming more expensive in terms of consumers' goods. Once this is established, then an important question for further investigation has to do with the extent to which this increased relative dearthness has been offset by the increased efficiency per unit of real capital as conventionally measured.

III. Price Trends in Construction and Producers' Durables

A modest amount of disaggregation provides a further basis for evaluating the significance of the apparent relative rise in the price of capital goods. At this point we may profitably turn to Table 4. While the relatively rapid rise in construction costs accounts for a large part of the secular rise in the ratio of P_k to P_c , this is not the whole story.⁹ In this connection it is convenient to divide the entire period since 1869 into three subperiods:

1. During the period of falling prices from 1869-78 to the 1890's,

⁹Kuznets [10, p. 42] points out that construction costs have risen more rapidly than prices of producers' durables in other countries as well as in the United States.

TABLE 4—PRICE DEFLATORS FOR COMPONENTS OF FIXED CAPITAL FORMATION
AND CONSUMERS' EXPENDITURES, 1869-1959^a
(1929 = 100)

	Consumers'				Producer' Durables	Con- struction
	Perishables	Semi- durables	Durables	Services		
Kuznets:						
1869-78	74.1	75.5	68.1	63.1	75.0	47.9
1879-88	57.6	58.7	49.3	55.7	53.4	44.6
1889-98	50.6	48.2	41.4	51.5	43.7	40.8
1899-1908	54.2	51.3	47.4	55.2	50.4	47.6
1909-18	75.1	70.1	66.7	69.1	73.1	59.7
1919-28	102.5	118.6	104.7	98.2	103.1	99.9
1929-38	81.1	84.4	87.1	89.5	91.0	93.8
1939-48	113.5	132.4	120.7	105.9	123.9	135.0
1944-53	147.0	173.5	153.8	130.6	154.0	200.9
Commerce:						
1929	100		100	100	100	100
1939	79.4		81.0	81.6	94.1	93.5
1949	157.5		150.8	125.1	165.7	202.2
1959	183.7		171.3	168.3	231.0	281.1
Percentage Change:						
1869-78 to						
1889-98	-31.7	-36.2	-39.2	-18.4	-41.7	-14.8
1889-98 to						
1919-28	102.6	146.1	152.9	90.7	135.9	144.9

^a These deflators were taken from the same sources, and derived in the same way, as those presented in Table 1.

the behavior of construction costs entirely accounts for the increase in our price ratio.¹⁰ Producers' durables fell in price more than any of the categories of consumers' goods shown in Table 4 (see the next-to-the-last line of the Table). This was in striking contrast to the relative behavior of the price index for producers' durables after 1929.

2. From the 1890's to the 1920's, a different pattern emerges. Dur-

¹⁰ If construction costs had changed in exactly the same way as the prices of producers' durables, the ratio of P_k to P_c for selected dates would have been as follows (1929 = 100):

1869-78	107.4
1889-98	89.2
1919-28	100.6
1959	131.3

These figures can be compared with the actual ratios of P_k to P_c in the last column of Table 1. The actual increase in the ratio from the 1890's to 1959 was about 75 per cent; in the hypothetical case above it is 47 per cent.

ing this period, the most marked contrast seems to have been between semidurables and all kinds of durables (including construction), on the one hand, and perishables and services, on the other. (See the last line of Table 4.) Construction costs rose relatively slightly more than the index for producers' durables, but the contrast is not as marked as during the period after 1929. Prices of consumers' semidurables rose as much as construction costs. The index for consumers' durables rose somewhat more than that for construction and, interestingly, it also increased more than that for producers' durables. This was in marked contrast to the period after 1929.

Thus it seems to have been the perishables and services that held down the deflator for consumers' expenditures during the first 30 years of this century.¹¹ Part of the contrast may have resulted from the fact that the durables are more highly fabricated and present more serious index-number problems because of changes in quality and introduction of new products. (Yet the deflator for semidurables rose as much as that for producers' durables or construction.) My guess is that not all of this differential price behavior can be explained away by defects in the underlying data and in the index numbers. If this is so, we can conclude that the behavior of construction costs alone accounts for only a small part of the difference in trend between P_k and P_c in the 30 or 40 years preceding 1929.¹²

3. The story is somewhat different for the period after 1929 (Table 4). The rise in construction costs between 1929 and 1959 was considerably greater than in the prices of producers' durables. Further, the latter rose much more than prices of consumers' durables, which was not the case before 1929. The increase in prices of consumers' durables was of the same order of magnitude as that in the prices of nondurables and services.

Here again, the explanation of these differences in trend is not obvious. With respect to construction costs, what we said in an earlier section is probably sufficient. The more rapid rise in the deflator for construction is not simply a statistical illusion resulting from deficiencies in the underlying costs indices. Further, the particularly rapid rise in building costs stems from the large increase in both building-material prices and unit labor costs, the latter resulting from the association of wage increases and a relatively slow improvement in productivity.

The contrast in the price trends for producers' and consumers' dur-

¹¹ It should be added that the price deflator for services before the first world war is particularly suspect.

¹² If construction costs had risen at exactly the same rate as the producers'-durables deflator, the ratio of P_k to P_c would have increased by 13 per cent between 1889-98 and 1919-28, instead of by the 17 per cent shown in Table 1.

ables is more puzzling. Some of the factors involved are probably those which the staff of the Joint Economic Committee considered in its massive study on *Employment, Growth, and Price Levels*. It may be surmised that a combination of factors caused the prices of producers' durables to rise more rapidly—relatively faster increases in unit labor costs because productivity increases offset less of the rise in wages, greater market power by sellers (on the average) than in the consumers' durable industries, possibly stronger upward demand pressures during some parts of the period, and possibly some additional direct and indirect influence on producers' durable prices from government military buying.¹³ To repeat, this is merely surmise, based on inadequate investigation of the available data. We have said enough, however, to establish our main finding: the rapid rise in the ratio of P_k to P_c after 1929 was due not only to the relatively rapid rise in building costs but also to the fact that prices of producers' durables rose much faster than those of consumers' durable or nondurable goods.¹⁴

Another point may help to throw some additional light on these differential price trends. Taken as a whole, the capital goods sector is more labor-intensive than that for consumers' goods.¹⁵ If we have a situation in which, in all industries, unit labor costs rise relatively faster than other costs per unit (this differential rise being the same in all industries), then product prices will rise most in those industries which are most labor-intensive. This sort of development, involving a general increase in labor's share, may have played some role in creating our differential price trends during parts of the total period that we have considered. A brief study of Schultze's figures [17] for the period since 1947, however, suggests that this has probably not been an important factor in the postwar period. Rather, both the wage and nonwage elements in unit prices have, on the whole, risen relatively more in con-

¹³ It has also been suggested to me that since the 1920's a number of consumers' durables (e.g., household appliances) have been in the stage of their growth curves that brought substantial internal and external economies. This may have been less true of producers' durables generally—in part because they are not produced on such a mass-production basis, in part because a good many branches of the machinery industry are relatively old. (Note in Table 4 the relatively good behavior of producers'-durable prices before 1929.) It may also be that in the last few decades quality improvements have had more of an effect on prices of producers' durables than on those of consumers' durables. The reader will also note that the relatively poor behavior of the producers'-durable deflator is not merely a postwar phenomenon. From 1929 to 1939, it declined as little as construction costs and much less than any of the deflators for consumers' expenditures.

¹⁴ Thomas Wilson [20] has presented a useful analysis of the postwar increase in machinery prices.

¹⁵ This is suggested both by an industry breakdown of labor's share, based on Department of Commerce national income data, and by an examination of Schultze's study of postwar costs and prices [17].

struction and (probably) in producers' durables than in the private economy taken as a whole.¹⁶

IV. *Some Implications*

In considering some of the analytical implications of these differential price trends I shall concentrate on the effect of these trends on the relation between investment and aggregate demand—i.e., on the multiplier. Some of the other possible implications of the differential behavior of P_k and P_c will be considered briefly at the end of this section.

Consider the bearing of our differential price trends on the consumption function and multiplier. First, we deal with the comparative statics case. Let $P_{k,0}$, $P_{c,0}$ and P_0 all be equal to 1 in a base year. Now we assume that in the given year, $P_{k,1} > P_1 > P_{c,1} > 1$. That is, prices of capital goods have risen more than those of consumers' goods between year 0 and year 1. The basic income identity in year 0, with all prices assumed to be unity, is, as usual:

$$Y = C + I.$$

But in year 1, this income identity in money terms becomes:¹⁷

$$P_1 Y = P_{c,1} C + P_{k,1} I.$$

Now let us assume that real consumption is a given proportion, a , of real income in year 0 and that the same consumption function holds in year 1. How do we write the consumption function in the latter year? Money income in period 1 is $P_1 Y$; but, from the point of view of consumers, real income in period 1 is not Y but

$$\frac{P_1 Y}{P_{c,1}}.$$

Therefore, it is apparent that we must write the consumption function in year 1 as:

$$C = a \frac{P_1}{P_{c,1}} Y.$$

Thus for any level of real income, Y , as usually defined, real consumption will be higher the higher the ratio of P to P_c , and P is nothing

¹⁶ For durable manufacturing as a whole, the gross return to capital per unit of output rose much more relatively than did unit labor cost and about twice as fast as in the entire nonfarm business sector [17, p. 50].

¹⁷ For the present argument, it does not matter whether the real magnitudes, Y , C , and I change between the two years or not. Hence I have not used time subscripts for these variables. Also, although I am assuming differential price increases, the argument is perfectly general and applies to either upward or downward changes.

more than a weighted average of P_k and P_c . Thus, for any year, dropping our year subscripts,

$$(1) \quad C = a \frac{P}{P_c} Y$$

where the P 's are measured relative to some base year.

At first blush, this seems a somewhat paradoxical result. We started out to define the consumption function in real terms, and we seem to have wound up defining it in money terms, since equation (1) can also be written

$$P_c C = aPY$$

and this says plainly that money expenditures are a constant fraction of money income.

The answer to our paradox is that the familiar Keynesian function, $C = aY$, holds in *both* real and money terms if P_c and P are always identical. No matter how much the price level changes, the propensity to consume is the same in both money and real terms as long as the sector price levels move perfectly in step.¹⁸ A problem arises only if P and P_c diverge.

If they do diverge, then consumers' real income can change either because of a change in Y or because of a change in the ratio P/P_c . In equation (1), we are simply assuming that either source of a change in consumers' real income in terms of consumers' goods will have the same effect on consumption.¹⁹ In the conventional formulation, the income effect of a differential price change is ignored.

It can be seen immediately what the introduction of sector price levels does to the multiplier. If we take the identity:

$$PY = P_c C + P_k I,$$

by substituting equation (1) we have:

$$\begin{aligned} PY &= P_c \left(a \frac{P}{P_c} Y \right) + P_k I \\ &= aPY + P_k I \end{aligned}$$

and

$$(2) \quad Y = \frac{P_k}{P} \left(\frac{I}{1-a} \right).$$

Thus, without a change in the propensity to consume in real terms, the output multiplier rises in proportion to P_k/P . Let us call this particular price ratio \bar{p} in our subsequent discussion.

¹⁸ Assuming, of course, that the change in the price level itself has no independent effect on consumption.

¹⁹ The existence of differential price trends raises some other questions about the consumption function that we shall have to ignore. One has to do with the wealth effects on consumption resulting from a changing ratio to P_k to P .

Although this is an obvious conclusion, it is a significant one once we accept the fact that capital-goods prices—or, for that matter, the price of government services—may behave quite differently from those for consumers' goods.²⁰ Consider, for example, the following important question. Was private gross capital formation, which is potentially the most unstable component of aggregate demand, a significantly smaller fraction of GNP in 1959 than in 1929? The larger this fraction, all other things equal, the greater the instability inherent in the U.S. economy.

As Table 5 brings out, the answer we get differs markedly depending on whether we use 1929 or 1959 prices. In constant (1929) prices, gross private domestic capital formation fell from 15.5 per cent of GNP in 1929 to 11.5 per cent in 1959, whereas in current prices there was very little decline. Correspondingly, consumers' expenditures as a

TABLE 5—SHARES OF MAJOR COMPONENTS IN GNP, IN CONSTANT AND CURRENT PRICES, 1929 AND 1959*

GNP Components	Percentage of GNP When Components Are Measured in			
	Current Prices		1929 Prices	
	1929	1959	1929	1959
Consumers' Expenditures	75.7	65.1	75.7	72.6
Gross Domestic Capital Formation	15.5	14.9	15.5	11.5
Government Expenditures	8.1	20.1	8.1	14.9
Gross National Product	100.0	100.0	100.0	100.0

* The original data are from *Economic Report of the President*, January, 1961. The minor component of net exports is omitted.

percentage of GNP fell from 75.7 to 65.1 if we measure in current prices, but only to 72.6 if we measure in 1929 prices. The rise in the share of government was much greater if measured in current prices than if measured in 1929 prices. Thus the rise in the share of government seems to have been chiefly at the expense of consumers if we measure in current prices and chiefly at the expense of capital formation if we measure in 1929 prices. Which is the better way of making these comparisons?

The answer is that we can make these comparisons either way, but each implies the use of a different multiplier. The reason for this has

²⁰This point has been mentioned in passing by a few writers, for example, Hicks [8, p. 130], who have recognized that such divergence in price movements may arise during cyclical booms. But, in general, the problem has been ignored, particularly with respect to longer-run effects; Kuznets, of course, is an exception. Meade's recent two-sector model [12] does not pay particular attention to the kind of multiplier problem discussed in the text. Salter [16] considers relative changes in capital-goods prices only from the point of view of production theory.

been suggested by the earlier analysis, but a simple illustration may help. A recent study [4, p. 762] suggests that with the price and other conditions prevailing in 1957 the short-run recession multiplier was about 1.34. Assume that, in 1957 prices, capital formation was approximately 15 per cent of GNP. Then a 10 per cent decline in investment would have caused GNP (in 1957 prices) to decline by about 2 per cent.²¹

But suppose we had been measuring in 1929 prices and that, measured in these prices, investment was only 11.5 per cent of GNP (i.e., the same as the 1959 percentage shown in Table 5). If we now ask: if investment declines by 10 per cent what will be the decline in GNP, we must modify the multiplier used in the preceding paragraph by the ratio of P_k to P (on 1929 as a base). This ratio in 1959 was close to 1.35. Letting Y and I stand for GNP and investment in 1929 prices, the relative decline in Y resulting from a 10 per cent decline in investment (where the latter is 11.5 per cent of Y) is given by:

$$\Delta Y = (.10)(.115 Y)(1.35 \times 1.34) = .02 Y.$$

This is the same result that we obtained when we measured the variables in 1957 prices, but in this case we have had to multiply the multiplier used previously by the ratio of P_k to P . Thus it is misleading to emphasize the postwar decline in the relative importance of investment when measured in constant prices unless we recognize that the postwar multiplier (reflecting postwar price relationships) must be adjusted upward for the rise in the ratio of P_k to P . We all know that the automatic stabilizers have reduced the short-run multiplier below its prewar value. But it is not so generally recognized that part of this stabilizing change has been offset by the rise in the ratio of P_k to P .²² This is simply because the money income generated by a given physical quantity of capital goods will, unless offset by higher taxes or savings, buy more consumers' goods now than before the war.

The effect of these differential price trends can be further illustrated by reference to a simple type of Harrod-Domar model. Assume an accelerator, v , so that we can write:²³

$$(3) \quad \frac{dY}{dt} = \frac{I}{v}.$$

This gives us the increase in real output resulting from current real

²¹ Let \bar{Y} represent the GNP in 1957 prices. Then

$$\Delta \bar{Y} = (.10)(.15 \bar{Y})(1.34) = .02 \bar{Y}.$$

²² This point has been discussed briefly by Bert Hickman [7, pp. 183-84].

²³ For the purpose of this discussion we ignore the fact that v is unlikely to remain constant if \bar{P} is changing. We also ignore the possibility that there might be different v 's for the capital-goods and consumers'-goods sectors.

investment. We assume now that P , P_c , and P_k are each a function of time. They are price index numbers, on a common base year, and we assume that the movement of each through time is independently determined. In accordance with equation (2), the multiplier effect of investment on income will be influenced by the ratio of P_k to P (which we call \bar{p}). Thus we have:

$$Y = \frac{\bar{p}I}{1-a}$$

or, substituting s for $(1-a)$,

$$(4) \quad Y = \frac{\bar{p}I}{s}$$

Differentiating with respect to time, we can express the increase in demand for real output as:

$$(5) \quad \frac{dY}{dt} = \frac{1}{s} \left(\bar{p} \frac{dI}{dt} + I \frac{d\bar{p}}{dt} \right).$$

Setting (3) equal to (5), which is the condition for an equilibrium rate of growth, and simplifying, we get:

$$(6) \quad \frac{1}{I} \frac{dI}{dt} = \frac{1}{\bar{p}} \left(\frac{s}{v} - \frac{d\bar{p}}{dt} \right).$$

We should like to be able to express (6) in terms of an equilibrium rate of growth of Y rather than I . If we divide (5) by (4), we see that:

$$(7) \quad \frac{1}{I} \frac{dI}{dt} = \frac{1}{Y} \frac{dY}{dt} - \frac{1}{\bar{p}} \frac{d\bar{p}}{dt}$$

so that by substituting (7) into (6) we wind up with:

$$(8) \quad \frac{1}{Y} \frac{dY}{dt} = \frac{s}{\bar{p}v}$$

It will be recalled that the Harrod-Domar equilibrium rate of growth is simply s/v . Equation (8) tells us how much this expression has to be modified for relative changes in the sector price levels. If, as has been the case in the past in the United States, P_k rises relative to P , so that \bar{p} increases, then the equilibrium rate of growth will decline because we must divide by an increasing \bar{p} . Further, as we see from a comparison of (6) and (8), the equilibrium rates of growth are different for I and Y , despite our assumption of a constant s . A changing \bar{p} , so that

$$\frac{d\bar{p}}{dt} \neq 0,$$

is responsible for this result.

Thus, if P_k is rising relative to P_c and therefore to P , the equilibrium rate of growth will be less than that given by the Harrod-Domar formula. And the lower the equilibrium rate of growth, the stronger are the expansionary forces working on the economy; the less likely is Harrod's natural rate to be below the warranted rate; and the less likely is it that the increases in productive capacity created by current capital formation will exceed the increases in demand created by the growth of current investment.

All this can be summarized as follows: if P_k is rising faster than P_c and therefore P , a constant (marginal and average) propensity to consume, in the sense defined previously, will cause consumption, when measured in constant prices, to become a rising fraction of real income, and *a fortiori* real investment will become a diminishing fraction of real income. Something of this sort has been happening in the United States and a number of other countries. To cite Kuznets' figures for this country [10, p. 14, and 9, Ch. 3], the ratio of gross capital formation to GNP, when both are taken in current prices, displays something close to a horizontal trend from the closing decades of the nineteenth century to the 1950's. When measured in 1929 prices, however, there is a significant decline. This is clearly a highly significant fact. It raises again the question to which we could give no clear answer before: have there been quality improvements to offset the differential rise in the price of capital goods and the resulting decline in the ratio of gross capital formation to GNP?²⁴

This brings us to another issue, with which we can deal only very briefly. It is unrealistic to assume, as we did in our simple growth model, that the capital-output ratio is independent of the relative dearth or cheapness of capital goods. Given an aggregate production function, a rise in the ratio of P_k to P , everything else remaining the same, can be viewed as having either of two equivalent results. We can say either that the marginal return on the replacement cost of a given amount of real capital declines or that, with an unchanging marginal return on real capital valued at constant prices, the cost of using a unit of real capital has increased.²⁵ Whichever way we view the situa-

²⁴ The same kind of problem arises with respect to the relative rise in the price of government services.

²⁵ We can restate this conclusion as follows. If, to take the simplest case, we have an aggregate production function $Y = F(K, L)$, and if with constant prices

$$\frac{\partial F}{\partial K} = r$$

in equilibrium, where r is the gross rental per unit of real capital, then if P_k and P are changing at different rates, so that \bar{P} is changing, we must write

$$\frac{\partial F}{\partial K} = r\bar{P}.$$

In equilibrium the marginal physical product of capital will need to rise with \bar{P} if r does not change, and this implies a lower ratio of K to L . (Here and elsewhere I ignore the

tion, the cost of capital has increased relative to its productivity; and, if other factor prices are unchanged, this should lead to attempts to economize in the use of capital, either by substituting labor for capital with a given state of technology or by inducing the kind of technological change that will make real capital more productive.

The cost of using capital depends, of course, on the interest rate and the rate of depreciation as well as on the price of capital goods. Even with their recent rise, interest rates have shown a net decline since the 1920's; depreciation rates, on the other hand, have undoubtedly risen. I have not tried to make any estimates of the rise in total costs per unit of capital. It seems reasonable to assume, however, that the total cost of using a unit of real capital, as well as the price of capital goods, has been rising faster than the price of consumers' goods.²⁶

Whatever the rise in capital costs, it is clear that money wages have increased much more.²⁷ As Salter points out [16, p. 36], the mere fact of technological change makes it inevitable that capital-goods prices should fall relative to money wages, although we are still left with the puzzle that, relative to wages, consumers'-goods prices have fallen relatively more. In any event, even after allowing for the rise in capital-goods prices, the trend in relative factor prices has still been such as to induce a substitution of capital for labor, but not as strongly as would have been the case had our differential price trends not existed.

Actually, we know from Kuznets' data [9, Ch. 3] that the ratio of capital to labor in the United States has been increasing, although at a retarded rate since 1929. The rise in this ratio has been associated with a rise in labor productivity and in real wages, although recent studies suggest that the increase in output per man-hour is due more to technological change (broadly interpreted) than to the increasing amount of capital per worker [1] [5] [18]. Presumably the rise in the ratio of capital to labor would have been even greater had it not been for the rise in P_k relative to P . The rise in the price ratio may have affected the capital-labor (and capital-output) ratio in two ways. As suggested in the last section, it has tended to reduce the supply of "real" savings,

complication introduced by the possibility that the rise in \bar{p} may be anticipated wholly or in part. I doubt that such (long-run) price anticipations play much of a role, particularly in view of the uncertainty created by technological change.)

²⁶ Salter, in his illuminating study of technical change [16, p. 37], offers some interesting figures on the rise in capital costs in the United States between 1930 and 1950 for capital equipment of different degrees of durability. During this particular interval, the marked decline in interest rates offset the relative rise in capital-goods prices sufficiently so that the cost of using capital equipment with a life of 20 years or more did not rise more than the price index for consumers' goods. Where the durability was less than 20 years, the rise in capital cost was greater than that in P_c . Since 1950, of course, interest rates have risen considerably.

²⁷ Here again Salter [16, p. 37] offers some interesting comparisons. See also the valuable study by John W. Kendrick, *Productivity Trends in the United States* (Princeton, 1961), particularly Ch. 5. This volume appeared only after the present paper had gone to press.

i.e., the purchasing power of savings in terms of capital goods. Second, it has, as indicated in the preceding paragraphs, increased the cost of acquiring real capital. The joint result presumably has been to keep the capital-output and capital-labor ratios from rising as rapidly as they might otherwise have done.

The effect of the differential price changes discussed in this paper has probably also affected the composition of the capital stock. Thus the decline in the share of construction in gross capital formation over the last half-century or more may be due in part to the particularly rapid rise in construction costs, although other factors were almost certainly more important.²⁸

Here are a range of considerations that deserve further study. We have said enough, however, to suggest that these differential price trends, if they are not merely a statistical illusion, may have had some effect on the rate of growth and the composition of the capital stock, the character of technological change, the ratio of capital to output and to labor, and possibly other significant economic variables.²⁹

V. Implication If Price Trends Are "Illusory"

Now we come to the final question raised at the beginning of this paper. Some readers may be prepared to argue that, despite the evidence submitted, most of the rise in the ratio of P_k to P_c is illusory. If they are correct, an uncomfortable conclusion follows. We should stop defeating current-price estimates of the GNP components by price deflators that show these "illusory" price trends.

We cannot have our cake and eat it too. If capital-goods prices have not been rising relatively as rapidly as the deflators suggest, then we should stop using these deflators. To argue that there has been no significant rise in the ratio of P_k to P_c over the last half-century or so is also to argue that the widely-used constant-dollar estimates of capital formation contain a significant downward bias. Conclusions drawn from such biased estimates are obviously suspect. The skeptic who refuses to accept the fact of these differential price trends must also apply his skepticism to the estimates of real-capital formation which he has probably used on more than one occasion.

REFERENCES

1. M. ABRAMOVITZ, *Resource and Output Trends in the United States Since*

²⁸ The declining share of construction has been discussed by Kuznets [9, Ch. 4]. Elsewhere [11, pp. 291-92] I have dealt briefly with the other factors involved besides the relative rise in construction costs.

²⁹ Only after the first draft of this paper was completed did I see J. E. Meade's new study [12]. In a lengthy appendix he develops a two-sector growth model in which the ratio of P_k to P_c is made an endogenous variable in the system, depending on the relative rates of technological progress in the capital-goods and consumer-goods sectors, on labor's share in the two sectors, and on the proportionate change between the real wage rate and the amount of profit per unit of real capital.

- 1870, National Bureau of Economic Research Occasional Paper 52. New York 1956.
2. L. J. CHAWNER, "Construction Cost Indexes as Influenced by Technological Change and Other Factors," *Jour. Am. Stat. Assoc.*, Sept. 1935, 30, 561-76.
 3. M. L. COLEMAN AND R. NEWCOMB, *Stabilizing Construction: The Record and Potential*. New York 1952.
 4. J. DUESENBERY, O. ECKSTEIN, AND G. FROMM, "A Simulation of the United States Economy in Recession," *Econometrica*, Oct. 1960, 28, 749-809.
 5. S. FABRICANT, *Basic Facts on Productivity Change*, National Bureau of Economic Research Occasional Paper 63. New York 1959.
 6. L. GREBLER, D. M. BLANK, AND L. WINNICK, *Capital Formation in Residential Real Estate*. Princeton 1956.
 7. B. G. HICKMAN, *Growth and Stability of the Postwar Economy*. Washington 1960.
 8. J. R. HICKS, *A Contribution to the Theory of the Trade Cycle*. Oxford 1950.
 9. S. KUZNETS, *Capital in the American Economy: Its Formation and Financing*. National Bureau of Economic Research, in press.
 10. ———, "Quantitative Aspects of the Economic Growth of Nations: VI. Long-Term Trends in Capital Formation Proportions," *Econ. Develop. and Cult. Change*, July 1961, 9, No. 4, Pt. II (entire issue).
 11. E. LUNDBERG, ED., *The Business Cycle in the Post-War World*. London 1955.
 12. J. E. MEADE, *A Neo-Classical Theory of Economic Growth*. London 1961.
 13. ORGANISATION FOR EUROPEAN ECONOMIC CO-OPERATION, *Statistics of National Product and Expenditure, No. 2, 1938 and 1947 to 1955*. Paris 1957.
 14. R. P. POWELL, *A Materials-Input Index of Soviet Construction, 1927/28 to 1955*. Pt. I. RAND Corporation Research Memorandum RM-1872. Santa Monica 1957.
 15. PRICE STATISTICS REVIEW COMMITTEE, "The Price Statistics of the Federal Government," printed in *Government Price Statistics*, Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, 87th Cong., 1st sess., Part I, January 24, 1961.
 16. W. E. G. SALTER, *Productivity and Technical Change*. Cambridge, Eng., 1960.
 17. C. L. SCHULTZE, *Prices, Costs, and Output for the Post War Decade: 1947-1957*. C.E.D. Suppl. Paper. New York 1959.
 18. R. M. SOLOW, "Technical Change and the Aggregate Production Function," *Rev. Econ. Stat.*, Aug. 1957, 39, 312-20.
 19. U.S. DEPARTMENTS OF COMMERCE AND LABOR, *Construction Volume and Costs, 1915-1956*, Stat. Suppl. to *Construction Review*, Vol. 3. Washington, D.C., n. d.
 20. T. A. WILSON, *An Analysis of the Inflation in Machinery Prices*, Study Paper No. 3 in Joint Economic Committee, *Study of Employment, Growth, and Price Levels*, 86th Cong., 1st sess., 1959.

THE ELASTICITY OF THE MARGINAL EFFICIENCY FUNCTION

By LORIE TARSHIS*

Economists who believe monetary policy to be relatively ineffective frequently base their views upon the alleged inelasticity of the function of the marginal efficiency of capital.¹ "Since the late 1930's," to quote James Duesenberry, "there has been a general tendency to suppose that investment is relatively insensitive to the interest rate" [9, p. 49]. And Paul Samuelson, accounting for this belief, states [16, p. 267]: "We used to think interest was too unimportant a cost to have much influence on short-lived projects; that in respect to long-lived projects it would be swamped by the larger factor of subjective uncertainty about the distant future." It is true that opinion now seems to be shifting [16] but there is no question about the base from which the shift is occurring.

The inelasticity of the marginal efficiency function is said to be confirmed by empirical observation and explained by theory. This is clearly a powerful team to contest. But the empirical evidence has recently been questioned [18] [19]. And the theoretical arguments which purport to explain why the function is relatively inelastic seem to be less than watertight; at least that will be the contention of this paper.

The tone of the paper is obviously critical, but that is because it seems clear that the question of the function's elasticity can only be answered by measurement; moreover, significant measures will not be obtained until there is a clearer picture than we at present have of the influence of various factors upon the function and its elasticity.

We begin with the assumption of the profit-maximizing firm, facing a perfect capital market, and operating in an environment in which factor costs, demand for product, and technology are subject to change.

* The author is professor of economics at Stanford University. He is grateful to his colleagues, Kenneth Arrow, Donald Bear, Bagicha Minhas, Marc Nerlove, and Edward Shaw, for helpful suggestions. The work was done while the author held a Ford Faculty Research Fellowship.

¹ Their claim may, of course, find support in other factors, such as the liquidity trap, or the activities of important nonregulated financial institutions, or in the contention that investment decisions are based upon motives other than profit maximization. Moreover, their claim is at times based upon the inadequacy of monetary measures to cure a slump or to contain inflation. In this paper I shall not be concerned with these other, perhaps more important, matters.

At the beginning we shall also assume that although the expectations held by businessmen may differ, each businessman nevertheless has complete confidence in the accuracy of his own appraisal of the future.

In regard to a particular investment project—whether it be to increase inventories, undertake repairs, replace equipment, initiate the construction of new plant, or to secure new machines—the sponsor can be supposed to entertain expectations as to the additional returns ($Q_1, Q_2 \dots Q_n$) it will provide in each period, $1, 2 \dots i \dots n$, over its life, the returns in each period depending upon the expected additions in that period both to his sales receipts and to his costs, appropriately measured.² The present value of the expected additional returns, or “increments” as we shall call them, can be made equal to the cost of the project itself ($= S$) at the appropriate rate, r , so that

$$S = \sum_{i=1}^n \frac{Q_i}{(1+r)^i}.$$

This rate (r) represents the project's expected percentage yield over cost (hereafter referred to as the yield) or the marginal efficiency of that project.³

On our assumptions, each project whose marginal efficiency or expected yield exceeds the interest rate will be undertaken, whether the excess is small or large. Accordingly, the amount of investment spending committed for any period will amount to what must be paid in that period in order to embark upon or carry forward every such project.⁴

In computing the marginal efficiency neither interest charges nor allowances for depreciation are to be subtracted as costs; or if they are, the rule for determining whether a project is worth while has to be stated differently. Since the conventional rule is convenient we shall apply it.⁵

Projects, of course, differ in such objective features as the industries in which they are located and many others, and so do businessmen in

² Any scrap value the investment item may have at the end of its operating life should be included in the estimate of Q_n .

³ It has been pointed out that if one or more of the Q 's is negative there may be several positive solutions for r .

⁴ Problems of interdependence will exist when the expected yield on one project depends upon whether the firm which has it up for decision is going ahead with another. For instance the firm may be unable to carry on efficiently more than a certain number (or dollar value) of projects in a given period; or the firm may find it worth while to undertake a project today which will contribute only indirectly by allowing the firm to hold a share of the market which another project, to be undertaken when technology is improved, can hope to exploit with greater success.

⁵ This, of course, does not mean that the firm would avoid paying interest, or that it should overlook depreciation in accounting for profit.

their optimism as they appraise the future and in their capacity to oversee investment projects. For these reasons, among others, we should expect differences in the marginal efficiencies attributed to the various projects. Project A may be expected by its sponsor to yield 30 per cent on its cost, and B, say, 10 per cent by its sponsor, the difference reflecting either a difference in objective circumstances—for instance the relatively high possibility of B's being rendered obsolete by impending technical improvements—or a difference in the character of the sponsor. Hence the amount, in both physical and value terms, of investment projects which are expected to yield at least 30 per cent will be lower than the corresponding figure for projects expected to yield at least 10 per cent; and so on. The marginal efficiency function will be less than perfectly elastic, simply because for different projects, specific marginal efficiencies also differ.⁹

The elasticity of the function depends upon the character of the distribution of the marginal efficiencies of all projects. If the marginal efficiency of most projects should lie between 10 per cent and 8 per cent and if their respective sizes are random with respect to these yields, the function would be decidedly elastic within that range, and quite inelastic for lower rates of interest. If instead, the prospective yields on the various projects are distributed uniformly over a very wide range, say between 100 per cent and 1 per cent, the elasticity of the function will be high at high rates of interest and low at low rates of interest. In order, then, to establish a sound quantitative estimate of the elasticity of the function, it would be necessary to learn about the distribution of the marginal efficiencies for all projects.

It seems doubtful whether most of the empirical results presented

⁹ Keynes accounts for the fact that the function is less than perfectly elastic on quite different grounds [12, p. 136]:

If there is an increased investment in any given type of capital during any period of time, the marginal efficiency of that type of capital will diminish as the investment in it is increased, partly because the prospective yield will fall as the supply of that type of capital is increased, and partly because, as a rule, pressure on the facilities for producing that type of capital will cause its supply price to increase; the second of these factors being usually the more important in producing equilibrium in the short run, but the longer the period in view the more does the first factor take its place.

Clearly these phenomena play a role in the real world. However, since the latter becomes important only as capacity operations are approached in the industries that produce investment goods, and the former only after sufficient time has passed to permit significant additions to capacity, his short-run function would tend when competition is perfect to be infinitely elastic over a wide range. As a result, if investment were taking place at all, its level would be close to the capacity of the investment-goods industry—assuming firms also borrowed in perfect markets—and the economy would have only two positions of stable equilibrium—one with investment zero and hence deep depression and the other with investment very high and hence high prosperity. But actually the forces to which Keynes draws attention really have to do with the position of the (*ex ante*) investment function not its elasticity.

up to now have shed much light upon this question.⁷ In the case of studies based on interviews, the one important exception to this judgment is the kind of information obtained by Erik Lundberg⁸ [14]; but it has not, apparently, been used to throw light upon the elasticity of the aggregate function or of the various less aggregative functions that comprise specific classes of investment projects.

The other method of empirical investigation, the econometric, should be more promising. Unfortunately, it is difficult to take the results seriously at this stage. The elasticity has been shown to be positive in some studies [13] [15, p. 188],⁹ and in others to be negative, and evidence for almost any value in between could doubtless be compiled. The results, in fact, appear to be very sensitive to the model chosen, and to the data and procedures used. But despite the wide differences found, there is the general belief, already noted, that the function has been observed to be inelastic.

Three characteristics of investment projects are usually cited as explanations for the inelasticity of the marginal efficiency function. First, the sponsors of long-lived projects would, it is claimed, be far more responsive to changes in the interest rate than would be the sponsors of projects that have a short life; hence the marginal efficiency function will be relatively inelastic when short-lived projects are in question and relatively elastic when the projects are long-lived. Secondly, the sponsors of projects whose returns are uncertain, will according to this claim also be relatively unresponsive to changes in the interest rate, and such projects will on the whole have a long life; hence because of riskiness, the marginal efficiency function for long-lived projects will also tend to be inelastic. Finally, with corporate profits taxed at a marginal rate of, say, 50 per cent, there is a third and decisive reason, so it is claimed, for expecting the marginal efficiency function to be inelastic.

It is maintained in this paper that none of these claims is valid, and that neither the shortness of projects' lives, their exposure to risk, nor the existence of high tax rates will necessarily render the marginal efficiency function inelastic, or indeed less elastic than it would have been had their lives been longer, had they been riskless, and had their returns not been subject to taxes. This, of course, does not mean that we should expect the function to be elastic, but only that what have

⁷ In particular, findings that businessmen pay little attention to the interest rate—or say they don't, anyway—in deciding whether to undertake projects, and findings that they regard other parameters as far more important than the interest rate in determining the yield anticipated from a particular project, are of very little use.

⁸ He notes [14, p. 669] "the greatest dispersion in the expected internal rate of return (before tax) of planned investment projects," which suggest a low elasticity of the marginal efficiency function, at least at low interest rates.

⁹ These results are, quite properly, rejected by the authors.

appeared to be convincing grounds for expecting it to be inelastic are not really convincing at all.

I. *Short-lived and Long-lived Projects and Elasticity*

In discussions of the elasticity of the marginal efficiency function, it is frequently asserted that a great deal depends upon whether projects are characteristically short-lived or long-lived.¹⁰ If the assertion were based upon observation and the inferences were drawn correctly, there could be no grounds for disputing it. But some economists have sought to prove it by logical argument.

The argument takes a number of forms: (a) When projects are short-lived, interest charges are relatively low and a change in the interest rate will consequently make little difference to costs; and vice versa when projects are long-lived. (b) When projects are short-lived, the ratio of depreciation allowances to interest charges is relatively high and a change in the interest rate will have only a minor effect upon the cost of using capital.¹¹ (c) The discounted value of a short-lived annuity changes much less in response to a change in the interest rate than that of a long-lived annuity.

While these statements may be perfectly correct it is doubtful whether they support the conclusion often drawn from them, or indeed whether they cast any light at all upon the elasticity of the marginal efficiency function.

In considering the relation between the length of life of projects and the elasticity of the function, we must specify carefully a model in which, while the length of life of the assets is made to vary, all other aspects of the projects are held constant. Actually this *ceteris paribus* assumption lies at the source of any confusion there may be. For the "other aspects" to be held constant can be defined in any one of at least four different ways: they can refer to a fixed pattern of expected yields; to a fixed pattern of expected "increments" or *Q*'s; to a fixed pattern of *Q*'s adjusted for differences in depreciation allowances; and finally to a modification of the first meaning to permit changes in the supply prices of the assets.

1. First, assume that the pattern of specific marginal efficiencies is the same whether we are dealing with short-lived or long-lived projects

¹⁰ " . . . Insofar as the investment which he has in mind involves highly durable forms of capital (buildings and that sort of thing) then there's an important effect of the long term rate of interest itself. Insofar as it involves equipment which wears out fairly rapidly, the rate of interest itself has a quantitatively much less important effect" [3, Question 10968]. Also, "Interest is too weak for it to have much influence on the near future" [11, p. 226].

¹¹ "In general, the sensitivity of demand for real assets to a change in interest rates and credit terms depends on the relative importance of interest charges and amortization payments in the total cost of the project" [20, p. 51].

and that the supply prices of all projects are the same. The short-lived projects A_1 , B_1 , C_1 , and D_1 promise yields of 4, 5, 6, and 7 per cent respectively over a 5-year period. The long-lived projects A_2 , B_2 , C_2 , and D_2 likewise promise yields of 4, 5, 6, and 7 per cent respectively, but their operating lives are assumed to be 10 years.¹² We are to compare the elasticities of the functions for the short-lived and the long-lived projects.

On our assumptions the elasticities of the two functions are exactly the same. If the interest rate were shifted from 5.5 to 4.5 per cent, project B_1 would be added to C_1 and D_1 ; project B_2 would be added to C_2 and D_2 . Once the distribution of expected yields is given, the elasticity of the function is set, and it is unaffected by the length of life of projects.

But this is not the whole story; something will be different in the

TABLE 1—COMPARISON OF SHORT-LIVED AND LONG-LIVED PROJECTS
FIRST ASSUMPTION

Five-Year Projects					Ten-Year Projects				
Project	Annual Increment	Yield	Present Worth of Gains		Project	Annual Increment	Yield	Present Worth of Gains	
			Interest at:					Interest at:	
			5.5%	4.5%				5.5%	4.5%
A ₁	\$224.63	4%	-\$40.77	-\$13.87	A ₁	\$123.29	4%	-\$70.69	-\$22.44
B ₁	\$230.97	5%	-\$13.68	\$13.86	B ₂	\$129.50	5%	-\$23.88	\$24.70
C ₁	\$237.40	6%	\$13.76	\$42.19	C ₂	\$135.87	6%	\$24.13	\$75.10
D ₁	\$243.89	7%	\$41.48	\$70.68	D ₂	\$142.38	7%	\$73.21	\$127.61

two situations and it is important to see precisely what that something is.

Projects A_1 and A_2 promise the same yield, 4 per cent, but over different time periods. The series of increments or Q 's to be derived from A_1 would be \$224.63 a year for 5 years, assuming that the supply price of A_1 is \$1000. The series of increments to be derived from A_2 , assuming it has the same supply price, would be \$123.29 a year for 10 years. The corresponding data for all of the projects, assuming the same supply price, is given in Table 1.

The measure of the advantage that the firm reaps from undertaking a project which promises to yield *more* than the interest rate equals the discounted value (at that rate) of the annual returns set out above minus the \$1000 required to finance the projects. These measures for an interest rate of 5.5 per cent and 4.5 per cent are also shown in

¹² All expectations are regarded as certain. The effects of risk are to be considered later.

Table 1 for the various projects. With the lower interest rate the gain to be obtained from undertaking any of these projects is increased (or the loss is reduced). More important for our question, the increases in gain brought about by such a reduction in the interest rate are larger for the long-lived projects; project A_2 is worth \$48.25 more when the interest rate falls from 5.5 per cent to 4.5 per cent, while project A_1 is worth only \$26.50 more; and so for B_2 as against B_1 , C_2 and C_1 , and D_2 and D_1 .

But note that it does not follow that a reduction in the interest rate would lead to a greater increase in investment when projects are long-lived than when they are short-lived. In our example the only new project undertaken as a result of the lower interest rate is B_2 where the long-

TABLE 2—EXPECTED YIELDS FROM SHORT-LIVED AND LONG-LIVED PROJECTS
SECOND ASSUMPTION

Annual Increments	Short-lived Projects		Long-lived Projects	
	Project	Yield (per cent)	Project	Yield (per cent)
\$224.63	A_1	4	A_2	4
\$230.97	B_1	5	B_2	4.5*
\$237.40	C_1	6	C_2	5.1*
\$243.89	D_1	7	D_2	5.7*

* Approximate figures

lived projects are in question; and B_1 where the short-lived ones are under examination. The two functions have the same elasticity.

This result will probably not be fully convincing since the critical assumption, that the pattern of yields is the same for the long-lived as for the short-lived sets of projects, may be questioned. Accordingly let us make a different assumption about the returns to the two kinds of project.

2. Assume that there is a given series of increments¹³ for each project, and that the series of increments from A_2 is expected to be the same as the series from A_1 , and likewise for B_2 and B_1 , C_2 and C_1 , and D_2 and D_1 .

The expected yields from projects A_1 , B_1 , C_1 and D_1 —4, 5, 6, and 7 per cent respectively—are assumed to be the same as in the first case. We now choose a supply price for each of the longer-lived projects which will set the yield from A_2 equal to that from A_1 and then, with this same supply price, compute yields from B_2 , C_2 , and D_2 . When the supply price for A_2 is \$1821.95 and it returns, according to assump-

¹³ For convenience we assume that the annual increments for any project are uniform over its whole life.

tion, \$224.63 a year for 10 years, it yields 4 per cent. With the same supply price, the yields from B_2 , C_2 , and D_2 are also given in Table 2, in comparison with the assumed yields from A_1 , B_1 , C_1 , and D_1 .

On comparing yields from the long-lived projects with those from the short-lived projects we can now find justification for the view that the elasticity of the marginal efficiency function will be higher when projects have a longer life. If the interest rate, in our example, were just below 4 per cent all projects whether short-lived or long-lived would be worth while; if instead it were 5.8 per cent no long-lived projects would be undertaken, but C_1 and D_1 of the short-lived projects would still be approved. Evidently then the conclusion we reach about length of life and elasticity depends upon the interpretation we give to the

TABLE 3—ANNUAL CONTRIBUTION TO NET PROFIT (GROSS OF INTEREST)
SECOND ASSUMPTION

Short-lived Projects			Long-lived Projects		
Project	Annual Net Profit	Index	Project	Annual Net Profit	Index
A_1	\$24.63	100	A_2	\$42.435	100
B_1	\$30.97	125.74	B_2	\$48.775	114.94
C_1	\$37.40	151.85	C_2	\$55.205	130.09
D_1	\$43.89	178.20	D_2	\$61.695	145.39

notion of holding everything else constant when the project's length of life is allowed to vary. We must now look into this second interpretation of the *ceteris paribus* assumption more carefully.

The increments or Q 's, as we have noted earlier, are not taken net of depreciation allowances. The Q 's ($= \$224.63$) of projects A_1 and A_2 represent the annual additions to profit before subtracting depreciation charges. But the amount of depreciation represented in A_1 's Q is $1/5$ of \$1000 or \$200 a year, while it is only $1/10$ of \$1821.95 or \$182.195 a year in A_2 's Q .¹⁴ Hence the projects make quite different contributions to net profit (before subtracting interest charges); A_1 adds \$24.63 a year, while A_2 adds \$42.435 a year. This would provide no ground for criticism were it not for the fact that the *relations* between the contributions to net profit from A_1 , B_1 , C_1 and D_1 and the corresponding contributions from A_2 , B_2 , C_2 and D_2 are quite different. Table 3 makes this clear.

The interpretation of the notion "other things being equal" is of course bound to be arbitrary. But it is doubtful that it is proper to have it apply to a situation in which the patterns of the contributions of the

¹⁴ Assuming straight-line depreciation, which for this purpose is close enough.

various projects to profits differ as between those that have a short life and those that have a longer one. Indeed, as we shall see shortly, it is this difference in the patterns of their contributions to profits (net of depreciation charges) rather than the difference in lengths of life, that lies behind the difference in elasticity noted above.

3. This can be demonstrated by changing the patterns of the annual contributions to net profit so that they are the same whether projects have a short or a long life.¹⁵ The series of increments for A_1 , B_1 , C_1 , and D_1 and also for A_2 are left unchanged. But instead of assuming that B_2 returns \$230.97 a year, inclusive of depreciation charges, we shall suppose that the net return from it is \$53.358 ($= \42.435×125.74)¹⁶ to which the allowance for depreciation amounting to \$182.195 must be added; the series of increments from C_2 would be \$246.632

TABLE 4—COMPARISON OF SHORT-LIVED AND LONG-LIVED PROJECTS
THIRD ASSUMPTION

Five-Year Projects			Ten-Year Projects		
Project	Annual Increments	Yield (per cent)	Project	Annual Increments ^a	Yield (per cent)
A_1	\$224.63	4	A_2	\$224.63	4
B_1	\$230.97	5	B_2	\$235.55	5 approximately
C_1	\$237.40	6	C_2	\$246.63	6 approximately
D_1	\$243.89	7	D_2	\$257.81	7 approximately

^a The supply price of A_2 , B_2 , C_2 , and D_2 is assumed to remain at \$182.195.

($= \$42.435 \times 151.85$ plus \$182.195) and from D_2 , \$257.814 ($= \42.435×178.20 plus \$182.195). Finally, we must compute on the basis of the modified increments the yields over cost from B_2 , C_2 , and D_2 and compare the patterns of yields from A_1 , B_1 , C_1 , and D_1 and from A_2 , B_2 , C_2 , and D_2 . The results are given in Table 4.

Since the patterns of yields are the same, so are the elasticities of the marginal efficiency functions. Length of life of investment projects appears to have no effect upon the elasticity of the marginal efficiency function so long as we take the patterns of net annual increments (or, in accordance with the first interpretation, the patterns of expected yields) to be independent of the projects' length of life.

4. For the fourth interpretation of the *ceteris paribus* assumption we return to the original notion, but this time allow for the effects of induced changes in the prices of capital goods. We will suppose that we have two populations of projects which in the initial situation provide

¹⁵ This will give us the third interpretation of the *ceteris paribus* assumption.

¹⁶ The ratio of the contribution to net profit from B_2 to that from A_2 then equals the corresponding ratio involving B_1 and A_1 . (See Table 3.)

the same pattern of yields. The short-lived projects have, as before, operating lives of 5 years; the long-lived ones all have an infinite life.¹⁷ As before, in Table 5 we identify the projects, the annual increments expected from them and their anticipated yields.

A reduction in the interest rate from, say, 6.1 per cent to 4.1 per cent would lead, as we have noted earlier, to the inclusion of B_1 and C_1 , if our projects were all short-lived, and B_2 and C_2 if they were long-lived, provided that neither the expected increment nor the supply prices of the investment goods were changed in consequence of this reduction. This provision was, of course, implicit also in the previous three cases. But there is the possibility that, as a consequence of the increased level of investment, there would be a rise in the supply prices of investment goods, and hence, assuming no change in expectations

TABLE 5—COMPARISON OF SHORT-LIVED AND LONG-LIVED PROJECTS
FOURTH ASSUMPTION

Short-lived Projects			Long-lived Projects		
Project	Annual Increments*	Yield (per cent)	Project	Annual Increments*	Yield (per cent)
A_1	\$22.0666	4	A_2	\$4	4
B_1	\$22.603	5	B_2	\$5	5
C_1	\$23.149	6	C_2	\$6	6
D_1	\$23.703	7	D_2	\$7	7

* The supply price of all projects is assumed to be 100 at first. In order to facilitate computations, we have determined the annual increments on the assumption of continuous compounding.

as to increments, some reduction in expected yields. If the price increases were the same for both sets of projects, the reduction in expected yields would be somewhat larger for the short-lived projects than for the others.

For example, if as a result of the increased demand for investment goods, their prices uniformly rose by 1 per cent, it would bring about a reduction in the anticipated yields from A_1 , B_1 , C_1 , and D_1 of about .4 percentage points—from 4 to about 3.6 per cent and so on; the same price increase would lead to a decline in yields anticipated from A_2 , B_2 , C_2 , and D_2 of less than .1 percentage points—from 4 to 3.96 per cent; from 5 to 4.95 per cent; from 6 to 5.94 per cent; and from 7 to 6.93 per cent. Hence, the response of investment to a reduction in the inter-

¹⁷ We use infinity rather than 10 years in this example in order to simplify the arithmetic. The assumption of an infinite life is not as absurd as it may sound; it would, for instance, be appropriate if it were expected that through replacements and repairs the projects would be maintained in peak condition indefinitely, in which case, incidentally, the annual increment would have to be taken net of depreciation and repair charges.

est rate, taking this price effect into account, would be greater the longer are the lives of the projects.

But before this conclusion is accepted unreservedly some qualifications must be borne in mind. First, it is likely to prove significant only when the economy is operating near capacity, for only then are prices likely to change appreciably because of a change in the demand for investment goods. Secondly, if prices are especially sticky downwards, then the conclusion is stronger for reductions in the interest rate than for increases. Finally, in so far as price varies inversely rather than directly with the amount of investment, the conclusion reached above is reversed and a change in the interest rate would have a greater effect upon spending on short-lived projects than on those with longer lives.

Note also that the differential effects would not be at all pronounced unless the price changes were appreciable and the differences in the lives of the projects were pronounced. If, instead of operating lives of 5 years and infinity, we had assumed lives of 5 years for one class and 10 years for the other, the difference in effect of a 1 per cent increase in price on yields for the two classes would have been much less, the 5 per cent yield for the former being reduced, as noted above to about 4.6 per cent, while for the latter it would have fallen to 4.8 per cent. Nevertheless, small though the difference may be, the total response to the change of the interest rate would have been somewhat smaller for the short-lived projects than for the long-lived ones.

This assumption shares with that of the first model the feature that the patterns of expected yields are initially the same for both classes of projects; it differs because it takes account of price reactions, and it assumes that although the supply functions of both classes of investment goods are also the same they are not perfectly elastic. But this implies that after prices have reacted to the changes in demand, the patterns of yields are no longer the same. And more important for our problem, the investment responses to a given change in the interest rate where these responses reflect both the elasticities of, and also the shifts in, the marginal efficiency functions are different. Though one may question the appositeness of the *ceteris paribus* assumption after the effects of the change in the interest rate have fully worked themselves out, the meaning given to it at the initial point is not at all unreasonable. It must be remembered, however, that the interpretations given to this same assumption under headings 1 and 3 were also perfectly reasonable, and they led to the conclusion that the response to a change in the interest rate would not depend upon the length of life of investment projects.

In short, under certain circumstances the elasticity, in the widest sense, of the marginal efficiency function would be greater for long-lived projects than for short-lived ones; but under others it would be

no different, and indeed it could even be smaller. Clearly a categorical statement can find no justification until the attendant circumstances are specified in some detail—and certainly in greater detail than is given by the phrase "all other things being assumed equal."

II. *Riskiness and Elasticity*

It is often asserted that the elasticity of the marginal efficiency function will be relatively low when investment projects are risky.¹⁸ On its face the argument is convincing. Suppose, it goes, the typical businessman requires a certain premium—say 30 per cent—to compensate him for the risk to which he is exposed before he can be persuaded to undertake a certain investment project. With the interest rate at 5 per cent, he would be willing to embark upon only those projects that promised yields, unadjusted for risk, of at least 35 per cent; with the interest rate at 4 per cent, he would be prepared to sponsor those on which expected yields, likewise unadjusted, were at least 34 per cent; and so on. Thus with a 25 per cent reduction in the interest rate (from 5 to 4 per cent) the stimulus to investment would be no greater than that provided by a mere 3 per cent decline in the rate (from 35 to 34 per cent), were there no uncertainty. This suggests an inelastic investment function.

However, the conclusion to which this argument leads is, in fact, far more restricted than it appears to be. As we shall see, it is likely to be valid when there is no direct relation between the amount to be allowed for risk on, and the yield expected from, each project; or when the supply price of investment goods varies directly, and appreciably, with the level of investment. But these conditions can scarcely be taken for granted, and when they are not realized, it does not hold. In the analysis which follows, we shall consider, first, how the various possible patterns of allowances for risk would influence the elasticity of the function, assuming the supply prices of the various projects to be fixed. Then we shall consider the differential effects upon the function's elasticity brought about by changes in the supply prices of investment goods, when the projects covered by the function are, on the one hand, riskless and, on the other, risky.

A. *Effect of Risk Allowance When Projects' Supply Prices Are Fixed*

Since the future returns to any investment project are bound to be uncertain its sponsor can be thought of as making his decision on the basis of a probability distribution of anticipations as to the incre-

¹⁸ "It is fairly certain that 'risky' investment, which is usually written off over a few years even if physically long-lived, is insensitive to small changes in interest rates" [5, p. 95]. "... risk is too strong to enable interest to have much influence on the far future" [11, p. 226]. See also [4, p. 715] [17, pp. 133-42].

ments (Q 's) and thus as to the yield; and in the degree that he is uncertain he would require a premium, expressed as a certain number of percentage points, to compensate him for risk. A single project about which there is uncertainty will then be worth undertaking if the difference between the best estimate of yield and the allowance for risk exceeds the interest rate.

Considering now the population of projects, the elasticity of the marginal efficiency function which is derived from them when there is uncertainty depends upon the distribution of yields on the various projects after the appropriate allowances have been made. We shall con-

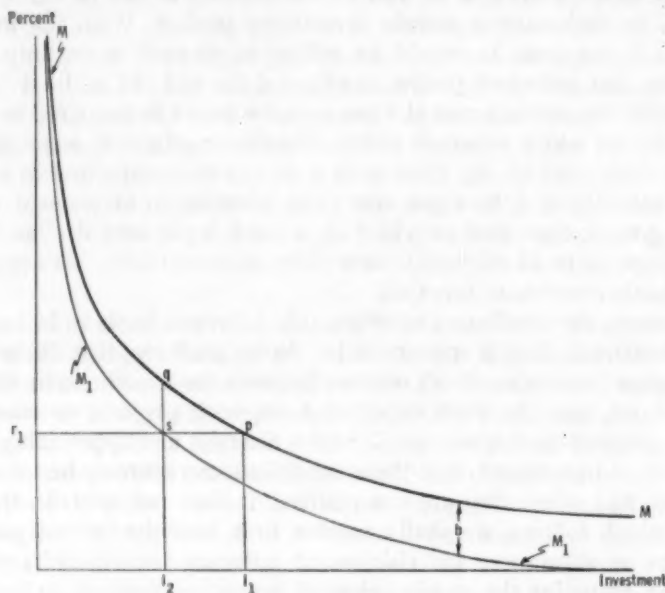


FIGURE 1

sider three possible patterns of allowances: (1) that they are the same on all projects; (2) that although they differ, they are random with respect to expected yields before adjustment for risk; and (3) that they vary directly with expected yields.

1. We consider, first, the simple case in which the same allowance for risk is made on all projects. Let us suppose that the elasticity of the unadjusted marginal efficiency function— MM in Figure 1—is constant over its whole range, and equal to K_1 . Each businessman is assumed to allow for risk by subtracting b percentage points from his best estimate of yield for each project. Then M_1M_1 , which is drawn so that it lies uniformly b points below MM , represents the marginal efficiency

function as adjusted for risk. At a given interest rate, r_1 , I_2 of investment would be programed when there is uncertainty; I_1 would have been undertaken had there been no uncertainty. And the elasticity of the adjusted function M_1M_1 is lower than that of the unadjusted function at the interest rate r_1 for:

$$\text{Elasticity of } M_1M_1 \text{ at rate } r_1 \text{ (at point } s) = \frac{dI_2}{dr_1} \cdot \frac{r_1}{I_2}.$$

Elasticity of MM at rate r_1 (at point p) = elasticity at rate (r_1+b) or at point q and this equals:

$$\frac{dI_2}{d(r_1+b)} \cdot \frac{r_1+b}{I_2} = \frac{dI_2}{dr_1} \cdot \frac{(r_1+b)}{I_2}.$$

Hence the elasticity of M_1M_1 at r_1 equals:

$$(\text{elasticity of } MM \text{ at } r_1) \times \left(\frac{r_1}{r_1+b} \right) = K_1 \cdot \frac{r_1}{r_1+b}.$$

But to show that the elasticity of the adjusted function is lower than that of the unadjusted function does not show that it is low in an absolute sense. If K_1 is sufficiently high and the allowance for risk is small enough, the elasticity of the adjusted function will still be above unity at any likely interest rate. When K_1 is, say, 5 and the allowance for risk is only 10 percentage points, the adjusted function is only inelastic at interest rates below $2\frac{1}{2}$ per cent. Even with K_1 at 3, and with 15 percentage points uniformly allowed for risk, the adjusted function is only inelastic at interest rates below $7\frac{1}{2}$ per cent.

If the elasticity of the unadjusted function is not uniform over the whole range, the formula still holds, but K_1 must represent the elasticity of the unadjusted function at a point (here q) corresponding to the amount of investment actually taking place. Then, if the elasticity of the unadjusted function should vary inversely with the level of investment, the relative response to a certain change from a designated interest rate may be greater when there is uncertainty than when there is not. It is clear then that even granting the rest of the argument, the introduction of risk does not necessarily lead to a lower elasticity (at a given interest rate) or to a low (less than unity) elasticity.

2. Next we consider the more general case in which, while the allowance for risk may differ from one project to another, it is independent of the gross or unadjusted yields expected on the various projects.¹⁹ Then, provided that the allowance is always positive, and that the unadjusted function is of constant elasticity over its whole range, the elasticity of the adjusted function will be lower than that of

¹⁹ The situation in which these allowances are uniform is a special instance of this condition.

the unadjusted function at each level of investment and at each interest rate.

The proof of the proposition is as follows: MM represents the marginal efficiency function, unadjusted for risk allowances; the elasticity of MM is constant and equal to K_1 over its whole range. We assume that on A per cent of the projects the allowance for risk is equal to b percentage points, and on the remainder it is equal to c percentage points (where both b and $c > 0$). We also assume that the probability of the appearance of a project which is to bear an allowance of b , instead of c , is the same whether the gross yield on the project is high or low.

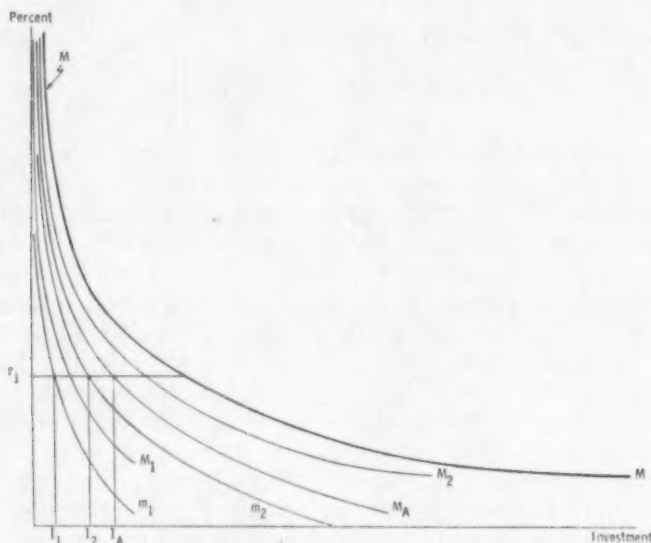


FIGURE 2

The functions M_1 and M_2 are drawn in Figure 2 so that they lie A per cent and $(100 - A)$ per cent respectively of the horizontal distance from the vertical axis and MM . Then M_1 is the marginal efficiency function comprising projects on which a risk allowance of b is to be levied; M_2 is the corresponding function for projects on which the allowance is to be c . And the elasticity of both M_1 and M_2 is equal to K_1 over the whole range of each.

We must now draw m_1 which lies b percentage points below M_1 , and m_2 which lies c percentage points below M_2 for each level of investment. The former curve m_1 represents the adjusted marginal efficiency function for those projects (A per cent in all) which are subject to an allow-

ance for risk of b ; m_2 correspondingly is the adjusted marginal efficiency function for the others. But the elasticity of both m_1 and m_2 is less than K_1 , as we have seen above; in fact the elasticity of m_1 is

$$(K_1) \left(\frac{r}{r+b} \right)$$

and of m_2 ,

$$(K_1) \left(\frac{r}{r+c} \right)$$

—varying, naturally, for different values of r .

We may now combine the two functions m_1 and m_2 by summing horizontally at each percentage rate of yield, in order to derive the adjusted marginal efficiency function (M_A) covering all projects.

The elasticity of M_A at any interest rate r_1 equals

$$\frac{\Delta I_A}{I_A} \div \frac{\Delta r_1}{r_1}.$$

But

$$\frac{\Delta I_A}{I_A} = \frac{\Delta I_1 + \Delta I_2}{I_1 + I_2}.$$

Since

$$\frac{\Delta I_1}{I_1} < K_1 \cdot \frac{\Delta r_1}{r_1} \quad \text{and} \quad \frac{\Delta I_2}{I_2} < K_1 \cdot \frac{\Delta r_1}{r_1},$$

it follows that

$$\frac{\Delta I_1 + \Delta I_2}{I_1 + I_2} < K_1 \cdot \frac{\Delta r_1}{r_1}$$

and hence

$$\frac{\Delta I_A}{I_A} \div \frac{\Delta r_1}{r_1} < K_1$$

and therefore the elasticity of M_A at r_1 is less than K_1 (= elasticity of MM at r_1). Thus the elasticity of the adjusted marginal efficiency function will be less than that of the unadjusted.

The construction and proof of the corresponding rule, when there are three or more classes of projects, each class being made up of projects on which risk allowances are the same, are identical with those offered above, and no new issue is introduced. Hence the proof can be regarded as perfectly general. But, of course, its validity depends upon there being no relationship between the allowance for risk on any project and its expected gross yield, and in addition upon the elasticity of the unadjusted marginal efficiency function being uniform over its range.

$$^{20} \Delta I < I_1 \cdot K_1 \cdot \frac{\Delta r_1}{r_1} \quad \text{and} \quad \Delta I_2 < I_2 \cdot K_1 \cdot \frac{\Delta r_1}{r_1}.$$

Hence

$$\Delta I_1 + \Delta I_2 < (I_1 + I_2)(K_1) \frac{\Delta r_1}{r_1} \quad \text{and} \quad \frac{\Delta I_1 + \Delta I_2}{I_1 + I_2} < K_1 \cdot \frac{\Delta r_1}{r_1}.$$

3. Now consider the situation in which the allowances for risk vary directly with the yields expected on the various projects. Let us suppose that the yield, adjusted for risk, is derived from the unadjusted yield by multiplying the latter by a certain constant (c), which is less than one. Then, if that constant should be, say, .6, the adjusted yield from a project on which the unadjusted yield was expected to be 50 per cent would come to 30 per cent; and so on. With such a pattern of risk allowances, the elasticity of the adjusted function would be the same as that of the unadjusted function at each level of investment since for any specified, proportionate change in investment, say,

$$\frac{\Delta I_1}{I_1},$$

the corresponding proportionate change in interest rates would be

$$\frac{c \cdot \Delta r}{c \cdot r} = \frac{\Delta r}{r},$$

as before. And if the elasticity of the unadjusted function were uniform over its whole range, the elasticity of the adjusted function would be the same as that of the function before adjustment; the introduction of risk would leave the elasticity unaffected. Moreover, if the elasticity of the unadjusted function varied inversely with the level of investment, then the introduction of risk—assuming it were allowed for in accordance with this rule—would lead to an *increase* in elasticity at each interest rate.

It is apparent that whether the elasticity of the marginal efficiency function comprising risky projects is low or not depends in part upon the way in which allowances for risk are made. Which of the three ways we have considered is the most likely one?

We shall consider, first, the likelihood that these allowances would be uniform. It might be supposed that at least when all projects were "equally risky" allowances would be the same. But quite apart from the ambiguity of the notion—for it could mean that the variances of the expectations of increments for all projects were the same, or that the coefficients of variation of all the expectations of yield were identical, or something still different²¹—this condition would not be sufficient. Before anything can be determined about the sizes of these allowances, information would also have to be forthcoming about the utility functions of the various businessmen: in what degree are they averse to risks?

²¹ To add to the list, it could mean that the variances of expectations of yield were the same; or that the coefficients of variation (or the variances) of the differences between the "worth" of each project and its supply price were identical. In short, the phrase is ambiguous.

Some businessmen are, as a matter of fact, likely to find gratification in being exposed to at least a moderate degree of risk, and they would presumably not require any additional compensation in order to be persuaded to undertake moderately risky projects. Other businessmen may feel a strong aversion to risk and when considering such projects, may insist upon a high premium. Businessmen, then, surely differ amongst themselves in their attitudes toward risk, and even if all projects were thought to be equally risky, they would not make uniform allowances for risk.

The likelihood of uniform allowances becomes even smaller when account is taken of the great differences in the riskiness of the various projects; for just as they differ in respect to expected yield, so too would they be expected to differ in respect to risk.

Of course if all projects were exactly alike in respect to both risk and expected yield and their sponsors were also alike in their attitude towards risk, risk allowances would indeed be uniform.²² This appears to be the assumption that underlies Shackle's demonstration [17, pp. 128-42] but, as we shall see, it clearly calls for the consideration of effects entirely different from those introduced up to this point.

If uniform allowances seem unlikely, what can be said for the view that allowances for risk are likely to be independent of anticipated yield? Not much, as we have already seen, if projects are thought to be equally risky, and if their sponsors share the same attitude toward risk. If sponsors differ in this respect, as surely they do, the problem appears to be insoluble. But what if these differences are unimportant, while the differences to be found as between the various projects are very great. Then, something can perhaps be said: Projects which promise the highest yields are likely to be developed in areas in which change is most marked;²³ but it is in these areas that uncertainties would be most serious. We have already seen that it is a long jump—given the differences among businessmen in their attitudes toward risk

²² If however the various sponsors shared a common attitude toward risk as expressed in a common utility function embodying risk and income, and if all their projects were equally risky, though not expected to provide the same yield, it would not follow that risk allowances would be uniform. Kenneth Arrow and Marc Nerlove have shown in unpublished work that on the assumption of a given utility function, quadratic in form, the allowances sponsors of the various projects would make would vary directly with the expected yields (unadjusted for risk) on these projects. Thus, in that very limited case, something can be said for the view that risk allowances would be proportional to yield; but, as we have seen, if that is so the introduction of risk does not lower the elasticity of the marginal efficiency function.

²³ All investment projects (save for items for replacement) which promise a positive yield reflect the existence of an actual (or at least anticipated) long-run disequilibrium situation of some sort. It seems reasonable to expect that the projects whose yields are expected to be highest are to be found in sectors in which disequilibrium is, or promises to be, most pronounced; and these are likely to be the sectors in which change—in market or technology—is most rapid.

—from the statement that uncertainty is abnormally high somewhere to the conclusion that we should therefore expect to find unusually high allowances for risk in that area. But with that qualification in mind, we might anticipate a direct relationship between the expected yield (unadjusted for risk) on any project, and the allowance for risk to be required by its sponsor. And of course in the degree that this relationship is found, the argument for the conventional view is vitiated.

It is unwise, however, to press an argument too far which requires rationality of decision-makers for its validity. While the common procedures for taking account of the uncertainties that surround an investment project could reflect careful calculations and a keen regard for the desirability of an exposure to risk, they are in fact likely to be too coarse in their application. And accordingly, implicit allowances for risk may turn out to be quite independent of expected yields. Firms frequently allow for risk by setting a period considerably shorter than a project's useful life within which it must return its cost, and in doing so, they are in fact likely to be making allowances for risk which are very substantial, and which depend very sensitively upon the exact pay-off period chosen and the expected useful life.

For instance when a project with a life of 5 years is required to return its cost in, say, 2 years, the implicit allowance for risk is more than 45 per cent.²⁴ If the pay-off period is 1½ years, the allowance for risk on the same project would come to 65 per cent. A 10-year project, required to return its cost in 3 years, would carry an implicit allowance for risk of 32 per cent and the same project with a 2-year pay-off period required would carry an allowance of 50 per cent. These figures are enough to suggest how variable (and appreciable too) are these allowances, and how sensitive they are to the pay-off period taken. The impression that in fact they are chosen rather arbitrarily provides perhaps the strongest argument for the conventional view about the effect of risk upon the elasticity of the marginal efficiency function, for they are unlikely to vary with expected gross yield, and if they are more or less independent of the yield, the adjusted function, as we have seen, may indeed be less elastic than the unadjusted.

How then, considering all these possibilities, should we expect risk to influence the elasticity of the investment function? Clearly, the argu-

²⁴ The calculation is as follows: the annual return inclusive of depreciation allowance and taxes, but exclusive of the interest charge must be 50, assuming the capital outlay to be 100. To this the interest charge of 5 is added, assuming an interest rate of 5 per cent. Then the yield over cost (including allowance for risk) is R where

$$100 = \sum_{t=1}^5 \frac{55}{(1+R)^t}; \text{ solving via } 100 = \frac{55}{R} [1 - e^{-5R}]$$

R comes to 50.6 per cent. The allowance for risk is then 5 per cent less or 45.6 per cent.

ment that it will be reduced since allowances are likely to be uniform has very little to commend it. Very much more can be said in behalf of the view that since risk allowances are likely to be especially high for projects on which the yields are expected to be highest, the elasticity is left unchanged by the introduction of risk. But this conclusion is itself subject to the qualification that, in the real world, allowances are likely to be made in accordance with simple rules which will make them insensitive to expected yield (and also to risk and sponsors' attitudes towards risk); if that view is correct, the elasticity of the investment function would indeed be lowered.

B. Effect of Risk Allowance when Projects' Supply Prices Vary

There remains one more argument for the conventional view to consider;²⁵ as in the case presented at the end of Part I, it relies upon the consequences of an increase (or decrease) in the supply price of investment goods as the demand for them is raised (or lowered).

Suppose we have two groups of projects, all in the first group promising a certain yield ($= p$) with no uncertainty, and all in the second also promising equal yields ($= r$), though with some risk which we shall assume requires a uniform allowance of, say, 20 per cent; moreover, it will be convenient to assume that all the projects in both groups are physically identical or at least that they all represent an equivalent amount of investment in real terms. We also assume that, when the interest rate is 5 per cent the amount of investment, as measured by the number of projects, is the same for each class of projects. If the operating life of all projects is taken as infinity,²⁶ and if each project is expected to provide an annual increment of 5, it follows that the supply price of a riskless project must be 100, while that of a risky project must be 20.²⁷ Now, if the interest rate should be reduced to 4 per cent, the amount of investment in the riskless class would be ex-

²⁵ Cf. Shackle [17, pp. 128-42]. Actually, it is difficult to be sure that his argument should be classified under this heading. Most of it seems to be based upon the assumption that all projects are the same, for risk allowances are assumed uniform, and in considering the elasticity of the function nothing is made of differences in expected yields from the various projects. But his conclusion seems to require such differences for he writes: "Now, there must surely be at any time in the minds of the enterprisers a larger number of contingent investment plans each having a value lying within 18% of its cost than there are of such plans each having a value lying within 6% of its cost" (p. 142). Yet if they exist, surely they would be decisive in establishing the elasticity of the marginal efficiency function.

²⁶ This assumption eases the arithmetic, but though it widens the difference to be noted below, it is not responsible for it.

²⁷ The gross yield of these latter projects must be 25 per cent, and the supply price which will provide such a yield with an annual increment of 5 is $\frac{5}{.25}$ or 20.

panded to a level at which the supply price of one of them comes to 125 or an increase of 25 per cent; the response of investment would depend upon the elasticity of the supply function for such goods. For the risky projects, the same reduction in the interest rate would lead to an increase in investment up to the level at which the supply price was 20.83, or only 4.1 per cent higher than the base level. If the elasticity of supply of these goods is the same, it follows that the response of investment to the reduction in interest rate would be far greater when riskless investment items were in question than for the others.

It must be noted that our conclusion that the elasticity of the marginal efficiency function for risky projects is relatively low is valid only for a special set of conditions. That it requires an elasticity of supply for riskless projects which is not considerably lower than that for risky projects is not objectionable. More serious is the requirement that the level of investment (in real terms), when the process begins, is assumed to be the same whether projects are risky or not. After all, it would be reasonable to expect an economy in which uncertainty prevails to invest at a lower rate, other things being equal, than one in which all expectations were regarded as certain. And then, though the response in absolute terms to a change in the interest rate might well be smaller when risky projects are involved, it would not follow that the elasticity was smaller. Finally, it assumes that the allowance for risk is not reduced (in this case to 18 per cent or lower) when the interest rate is cut.

Considering next the more realistic model in which significant differences exist among the projects of each of the classes, we can see that changes brought about in the supply price of investment goods will influence the total response.²⁸ If the supply price of investment goods varies directly with the level of investment, the consequences of a change in supply price will be greater—though in a direction opposite to that directly caused by the change in interest rate—when risky projects are being considered; and the total response to such a change in the interest rate will therefore be less. If, however, the relationship between investment goods' prices and the amount of investment is inverse, then a change in the interest rate will lead to a greater total change in investment when risky projects are being considered than when riskless ones are—assuming that the patterns of adjusted yields of the two classes of projects are the same to begin with.²⁹

²⁸ As when we were dealing with the relation between the projects' length of life and the elasticity, we should prefer to regard this response as compounded of the elasticity of the marginal efficiency function and shifts in the function itself (brought about, in this case, by changes in the supply price of the investment goods).

²⁹ The consequences of the price change are greater for the risky projects, and this time they operate in the same direction, thus fortifying the total effect. To illustrate: a reduction in the interest rate would lead directly to an increase in investment. Such an increase, according to our assumptions, would lead to a decline in the prices of invest-

It will now be clear that the common view, even when price changes are admitted into the model, can only be accepted with caution. In the first place, the supply price of investment goods must respond directly (and appreciably) to changes in the level of investment—a condition which is likely to hold only when the economy is operating close to its capacity. The supply functions of risky and riskless projects must be the same, or at least the elasticity of that function for risky projects must not be significantly greater than it is for riskless projects. The risk allowances on individual projects must not vary more than proportionally with their expected gross yields, and they must not vary inversely with the interest rate. The elasticity of the adjusted marginal efficiency function for risky projects must not be greater than that of the function embodying riskless projects, at the supply prices ruling before the interest rate is changed. And finally the level of investment when projects are risky must not be significantly below its level when they are riskless. All these conditions might of course be subsumed under a *ceteris paribus* assumption, but it would clearly have a rather complicated content, and with other perfectly reasonable interpretations of the same assumption, the conventional conclusion could find no support.

Thus, in conclusion, while arguments can clearly be found which can validate the view that the elasticity of the marginal efficiency function will be relatively low when uncertainty prevails, it can hardly be claimed that these arguments are always (or perhaps even usually?) applicable.

III. *Taxes on Profits and the Elasticity of the Investment Function*

Among the many circumstances that have been adduced to account for the inelasticity of the function of the marginal efficiency of capital,³⁰

ment goods, and such a price reduction would stimulate investment still further, having a more pronounced effect upon risky projects than upon riskless ones.

³⁰ We could add to the list already discussed that the function is likely to be especially inelastic:

(a) *In depression*: "This [the interest-elasticity of the investment function] is likely to change from one phase of the cycle to another. . . . In the depression phase of the cycle, however, the investment function is likely to be interest-inelastic" [10, pp. 76-77].

(b) *In prosperity*: ". . . our second condition provides that a moderate change . . . in the rate of interest will not involve an indefinitely great change in the rate of investment. This is likely to be the case owing to the increasing cost of producing a greatly enlarged output from the existing equipment. If indeed we start from a position where there are very large surplus resources for the production of capital-assets, there may be considerable instability within a certain range"; [for the function would be highly interest-elastic in depression] "but this will cease to hold good as soon as the surplus is being largely utilized" [12, p. 252].

(c) *In the long run*: "The short run elasticity of investment [sic] must, therefore, be very high. The long-run elasticity is, of course, much lower" [9, p. 63].

(d) *In the short run*: "It will be clear that I attribute to monetary forces a substantial influence on investment, though I regard it as slow in coming into effect . . ." [6, p. 139].

the high rates of taxes on corporate profits figure prominently.⁸¹ We have found no detailed argument supporting this view, though Kaldor presents one in capsule form (in a footnote) to justify what many others evidently regard as obvious. He writes [7, p. 147]:

For what matters from the point of view of the entrepreneur is the excess of the prospective net rate of profit on investment (net after income tax and profits tax) over the net rate of interest on loans (net income tax). With a given gross rate of profit the excess of the net rate of pffoit [sic] over the net rate of interest will of course only be reduced (with a rate of income tax of 50%) by one-half of every percentage point rise in the gross rate of interest.

But unfortunately, while Kaldor's arithmetic is correct for almost every part of the range, it is incorrect in the part that is peculiarly relevant, and his conclusion hence finds no support.

In order to show this, let us once again assume a population of projects which vary among themselves in respect to the yields expected from them. We suppose initially, for simplicity, that all projects have an infinite life so that there is no depreciation; moreover, we assume that all estimates are regarded as certain so that no allowance need be made for risk. Our problem is to see how the elasticity of the marginal efficiency function would be affected by the introduction of a tax on net profits, at a rate of, say, 50 per cent.

The expected yields from the various projects and, assuming that the supply price of each project is 100, the anticipated increments or Q 's are shown in Table 6. If taxes were zero, and the interest rate were 9 per cent, it would be profitable to undertake projects A and B. Were the interest rate instead 4.5 per cent, with taxes still zero, projects C, D, E, and F would be added to the list.

Now suppose the 50 per cent tax is imposed. Since it is levied on profit *after interest charges*, we can only determine how high will be the tax on a specific project after we know the interest rate. If the interest rate is again set at 9 per cent, the annual tax on project A would come to 1.5, and the yield, inclusive of interest, which is the measure to be used as the investment criterion, comes to 10.5 per cent. The yields expected on the various other projects are set out in Table 6.

Both projects A and B would once again promise a yield in excess of interest charges, and hence even with the 50 per cent net profits tax, it would be profitable to undertake them; naturally, however, the gain

⁸¹ "The taxation system also operates so as to reduce the sensitiveness of investment decisions to changes in interest rates" [7, p. 147]. Also: "Moreover . . . and the high level of company taxation both reduce the impact of high interest rates on fixed investment" [8, p. 162]. Also see [1, Question 10410] and [2, Question 10610].

from doing so would be less than it would have been had there been no tax.

With the interest rate at 4.5 per cent, the annual tax on project A would be 3.75 instead of 1.5 and it would have to be recomputed for the others as well; naturally the figures for expected yields would also have to be revised. They are shown in the last column of Table 6. Inspection of these results shows that at the lower interest rate, projects C, D, E, and F would be added to the list of those that are worth while, which is precisely the same result as we obtained when there were no taxes. The response to the reduction in interest rates would be the same whether taxes were levied on net profit or not. In that sense, then, the elasticity of the function is unaffected.

TABLE 6—EXPECTED INCREMENTS AND YIELDS FROM VARIOUS PROJECTS
(With no tax; tax at 50 per cent; with different interest rates)

Project	Expected Q (No tax)	Yield (No tax)	Yield: 50 per cent tax	
			Interest rate 9 per cent	Interest rate 4.5 per cent
A	12	12 per cent	10.5 per cent	8.25 per cent
B	10	10 per cent	9.5 per cent	7.25 per cent
C	8	8 per cent	8 per cent	6.25 per cent
D	7	7 per cent	7 per cent	5.75 per cent
E	6	6 per cent	6 per cent	5.25 per cent
F	5	5 per cent	5 per cent	4.75 per cent
G	4	4 per cent	4 per cent	4 per cent
H	3	3 per cent	3 per cent	3 per cent

Now consider Kaldor's argument. In our example the interest rate was reduced from 9 per cent to $4\frac{1}{2}$ per cent or by 4.5 percentage points. On projects A and B, which would have been undertaken at the higher interest rate, this reduction brings about an increase in the margin between the after-tax yield to be expected and the interest rate which is, as Kaldor says, equal to half the decline in the interest rate, or 2.25 percentage points.²² But for projects C, D, E, and F which are the critical ones since they are the ones that only become worth while at the lower rate, the reduction in the rate brings about an increase in the relevant margin or something more than 2.25 points; for C the increase is 2.75 points; for D, 3.25; for E it is 3.75; and for F, 4.25 points. (And if there had been a project which had promised a yield of 4.5 per cent—before tax—such a decline in the interest rate would have raised the margin by the full amount of the decline.) It is here, with projects which are unprofitable at the higher rate but worth under-

²² For project A, the comparison is $10.5 - 9.0 = 1.5$ points at the higher rate and $8.25 - 4.50 = 3.75$ points at the lower.

taking at the lower, that Kaldor's arithmetic is faulty; and yet it is with respect to these projects and to these only that such arithmetical comparisons matter. The explanation of our result is that on projects that are not profitable at the higher interest rate, no tax would be paid; if the tax is to be paid at both interest rates, which is required if Kaldor's result is to be obtained, the project must have been worth undertaking at both rates.

The question arises whether the results we have reached should be described in terms of the elasticity of the marginal efficiency function. Actually, there is a different function, when taxes are levied on net profit, for each interest rate; note, for example, that the patterns of yields are different when the interest rate is 9 per cent and when it is $4\frac{1}{2}$ per cent. A change in the rate produces two effects—one described by a movement along the function, the response described in terms of the elasticity of the function, and the other described by a shift in the function. In a strict sense, as a comparison of the patterns of yields as set out in Table 6 will show, the function is actually *more* elastic when taxes are levied than when they are zero. But the effect of reducing the rate is partly offset by a shift of the marginal efficiency function in the same direction.

Two objections may perhaps be raised against this demonstration. First, it may be questioned whether our results do not depend upon the assumption that the projects have an infinite life. This objection can be easily answered. The Q 's whose pattern is under examination are to be taken gross of the allowances for depreciation, and if these allowances are computed properly, the answer is the same as that reached on the assumption of infinite lives.²²

Secondly, it may be argued that when anticipations are uncertain, the imposition of a tax will compel businessmen to increase risk allowances. Whether this is so will depend, as we have already noted, upon the utility functions of the various project sponsors. But even if it is so, it will not necessarily lead, as we have seen, to a *reduction* in the elasticity of the marginal efficiency function.

The whole analysis of the effect upon the elasticity of profits taxation demonstrates once again that a distinction must be drawn between modifications in the impact of a change in, say, the interest rate upon the worth of a particular project, and changes in the elasticity of the demand for investment goods. The worth of a project whose returns are subject to taxation will be less affected by a shift in the interest rate than the worth of an otherwise identical project with no such tax. But as we have seen before, this does not mean that the demand for

²² Naturally, if the depreciation allowances are inappropriate, the pattern would be affected, though it might just as well show a more elastic function.

projects, when taxes are levied, is less elastic than when there are no taxes.

IV. *The Determinants of Elasticity*

The foregoing analysis should show that we cannot buy knowledge cheap; that if we wish to know whether the marginal efficiency function is elastic or inelastic we shall have to dig out the facts. Our limited objective has been to clear away obstacles that are likely to stand in the way of accurate observation—obstacles which unacceptable theorizing may have erected. Most emphatically it has not been to supply substitutes for such empirical investigation. Whether risk raises or lowers the elasticity of the function; whether the demand for long-lived projects is more or less elastic than that for other projects; whether the elasticity of the function is rendered lower or higher because of taxes on profits are matters which cannot be answered categorically by recourse to "theory." But good theory can of course guide our efforts to determine the answers by pointing out what relations should be investigated, while bad theory will manufacture only false clues.

The thesis of the argument up to this point is that the elasticity of the marginal efficiency function is not necessarily low simply because investment projects are short-lived, or if long-lived simply because their returns are liable to be uncertain, nor is it made low by high taxes on business profit. In short, some at least of the generally accepted rules appear to be misleading. This may suggest that the search for other simple and generally applicable rules will prove to be no more fruitful. In this section instead of embarking upon such a search, we shall set out in general terms a number of factors that appear to play a part in determining the elasticity of the function.

In the final analysis, the elasticity depends upon the pattern of yields expected from the various projects under active consideration. The closer to one another are the expected yields from different projects, the greater is the elasticity, at least around that figure; and the greater the degree of variation in expected yields, the lower is the elasticity. Hence the object of our inquiry is to consider the forces that bring expectations of yield closer together, or farther apart.

Consider first the pattern of expected yields in a static economy in which all units are in long-run equilibrium. With technology, factor prices and markets unchanging, investment projects are required only to provide replacements for capital goods as they wear out. But even in such a situation, the yields anticipated from replacements could be expected to differ among themselves. The yield from any project would depend upon: (a) the rate of increase in costs which accompanies the wearing-out of the assets; (b) the possibilities of modifying this in-

crease by using other equipment more intensively, or substituting other inputs; (c) the elasticity of the cost function; and (d) the elasticity of the demand function. The greater the dispersion of the effects upon cost of wear-and-tear, the greater the dispersion in the capacity to compensate for such cost-increasing developments, and the greater the differences in elasticities, the greater will be the dispersion of expected yields from the various projects, and the lower, then, will be the function's elasticity.³⁴

Next, we may modify our assumption of a static economy so that, though it remains in over-all long-run equilibrium, its sectors need not; this allows us to list additional factors which influence the pattern of expected yields. A shift in demand, for example, from the product of one sector to that of another, will on the average widen the differential between yields expected from projects in these different sectors, provided that the shifts are random with respect to the parameters already noted. Thus, the more pronounced are these shifts, the lower is likely to be the elasticity of the investment function. The same conclusion applies in connection with shifts in cost functions; the more pronounced they are, the lower will be the elasticity, subject to the provision already noted.

Third, when possibilities of growth and technical advance are admitted, the factors making for differences in expected yields obviously multiply. Technical progress and the growth of the economy do not happen evenly, affecting all parts of the economy uniformly. Likewise, changes in factor prices are likely to affect the various projects by different amounts. And the more rapid these changes, the greater are likely to be these differential effects, and hence the lower will be the elasticity of the investment function.

We may then conclude that, considering only the objective circumstances, the elasticity of the investment function will be lowered by pronounced differences, as between sectors, in such developments as: (a) rate at which demand shifts; (b) rate at which costs rise as equipment wears out; and (c) the rate at which technology advances; and finally by the existence of pronounced differences in the elasticities of the cost and demand functions.

Estimates of yield are, however, not simply a matter of objective circumstances. They are made by sponsors who will surely differ amongst themselves. The greater are these differences, the lower, too, will be the elasticity.

Finally, as noted earlier, each sponsor will make an allowance for risk; and the larger are these allowances, subject to a general condition already mentioned, the lower will be the elasticity.

³⁴ Provided that these various parameters are unrelated.

In short, then, low elasticity is a product of differences, and the greater these differences are, the lower will this elasticity be—subject to the important qualification that the patterns of these various differences—in elasticity, cost changes, and so on—are random with respect to one another. But as we have noted in considering the influence of risk upon the elasticity of the investment function, this independence can not be simply taken for granted.

REFERENCES

- 1-4. COMMITTEE ON THE WORKING OF THE MONETARY SYSTEM (RADCLIFFE COMMITTEE), *Minutes of Evidence*. London 1960.
 1. Oliver Franks
 2. Harry Johnson
 3. R. F. Kahn
 4. N. Kaldor
- 5-8. COMMITTEE ON THE WORKING OF THE MONETARY SYSTEM, *Principal Memoranda of Evidence*, Vol. 3. London 1960.
 5. J. C. R. Dow
 6. R. F. Kahn
 7. N. Kaldor
 8. I. M. D. Little, R. R. Neild, and C. R. Ross
9. J. DUESENBERY, *Business Cycles and Economic Growth*. New York 1958.
10. ALVIN HANSEN, *Monetary Theory and Fiscal Policy*. New York 1958.
11. J. R. HICKS, *Value and Capital*, 1st ed. Oxford 1939.
12. J. M. KEYNES, *The General Theory of Employment Interest and Money*. New York 1936.
13. A. KISSELGOFF AND F. MODIGLIANI, "Private Investment in the Electric Power Industry and the Acceleration Principle," *Rev. Econ. Stat.*, Nov. 1957, 39, 363-79.
14. E. LUNDBERG, "The Profitability of Investment," *Econ. Jour.*, Dec. 1959, 69, 653-77.
15. J. R. MEYER AND EDWIN KUH, *The Investment Decision—An Empirical Study*. Cambridge, Mass. 1957.
16. P. A. SAMUELSON, "Reflections on Monetary Policy," *Rev. Econ. Stat.*, Aug. 1960, 42, 263-69.
17. G. L. S. SHACKLE, *Uncertainty in Economics*. Cambridge, Eng. 1955.
18. W. H. WHITE, "Interest Inelasticity of Investment Demand," *Am. Econ. Rev.*, Sept. 1956, 46, 565-87.
19. ———, "The Rate of Interest, the Marginal Efficiency of Capital, and Investment Programming," *Econ. Jour.*, Mar. 1958, 68, 51-59.
20. THE REPORT OF THE COMMISSION ON MONEY AND CREDIT, *Money and Credit: Their Influence on Jobs, Prices, and Growth*. Englewood Cliffs, N.J. 1961.

THE SIZE STRUCTURE OF THE LARGEST INDUSTRIAL FIRMS, 1909-1958

By NORMAN R. COLLINS AND LEE E. PRESTON*

The identity and importance of the largest business units have been subjects of continuing interest in economics. Which are the largest firms? Why are they large? What is their position in the economy? These questions do not involve the examination of competition in particular markets, although the results may be highly significant for market analysis; rather, they involve the identity, structure, and behavior of some groups of firms which are indisputably "large" relative to the other business units in the economy. In this article, we identify the largest industrial firms in the economy over a period of a half century and then develop and apply to these firms a collection of measures which describe changes over time in and *within* their size distributions.

The present investigation is a direct extension of earlier studies—particularly the study of the 100 largest industrials by A. D. H. Kaplan [18]. The thesis examined by Kaplan might be formally stated as follows: Given the continuing importance of giant companies in the economy, does the record of appearance, disappearance, and shift in relative size among the giants suggest the "entrenchment and rigidity of big business leadership" or a "fluid and dynamic situation" in which even the largest firms are subjected to strong competitive pressures? From an examination of lists of the 100 largest industrial firms in five selected years between 1909 and 1948, Kaplan concluded:

Positions of leadership as reflected by a place among the 100 largest industrials appear from the record to have been, on the whole, unsure and maintained with great effort [18, p. 141].

. . . when the total shifting of positions is considered, with 205 firms moving in or out of the class of 100 largest industrials during the forty-year span, . . . the evidence of challenge by competitors both new and old becomes significant [18, p. 142].

. . . There is no reason to believe that those now at the top can remain there any more than did their predecessors, short of alert participation in continuous product and market development.

These evidences of mobility of position among the 100 largest industrials

* Giannini Foundation Paper 211. The authors are, respectively, associate professor of agricultural economics and assistant professor of business administration, University of California, Berkeley. They gratefully acknowledge the assistance of Eleanor M. Birch in the collection and tabulation of data used in this paper.

do not accord with any general assumption that large-scale corporations enjoy secure entrenchment by virtue of their size [18, pp. 142-43].

... The record does ... indicate that we are not justified in identifying increase of financial resources of large-scale enterprise with net decline in the scope and vigor of competition [18, p. 144].

The discussion rising out of Kaplan's work raised questions both as to the facts about the relative stability and turnover among the largest firms in the economy and the interpretation that these facts allow.¹

The present study selects for analysis the 100 largest firms in manufacturing, mining, and distribution in the United States in the years 1909, 1919, 1929, 1935, 1948, and 1958. These firms are identified and ranked in the Appendix (pp. 1004-11). The number of firms is obviously an arbitrary selection, and in this, as in the selection of the years in which observations were to be taken, we have followed Kaplan; the final year was selected in order to bring the work as nearly up to date as reliable data permit. Size of firm is measured by total assets.² The data tabulated in Table 1, line 2, show that the share of the 100 largest firms in the assets of all industrial corporations has increased from something under 25 per cent (perhaps from under 18 per cent) in 1909 to nearly 30 per cent in 1958. Although definitive measurement is not possible, these statements agree with conclusions reached by Kaplan [18, pp. 112-31], Mason [22, pp. 23-32], Bain [6, pp. 187-209], and Adelman [4] that there has been no decline, and possibly a slight increase, in the relative importance of the very largest corporate units in the economy over the first half of the present century.

I. Changes in the Size Structure of the Giant Firms

Changes in the size structure of the 100 largest firms can take any one of the following forms: First, there may be changes in the shape of their size distribution; the largest firms may become more nearly equal or more unequal in relative size. Second, there may be changes in the identity of the giants; new firms may arise to replace others on the list of the largest industrials. Third, there may be internal mixing—change in the size-ordering of firms with respect to each other. In this section, we examine changes of all three types as they have occurred

¹ Kaplan's analysis has been subjected to a number of significant criticisms [5] [11] [19] [21] [31]. Nearly all of the critics pointed out errors or ambiguities in the data used. Further, they questioned whether the data showed evidence of much or little mobility in the size positions of the largest firms and whether the degree of mobility had changed substantially over time.

² The best measure of firm size for a study of this type has been widely debated. Assets have been used here both because of their availability and because of their significance as an index of ability to engage in economic activity. The measurement problem is discussed in virtually all of the references listed at the end of this article.

in the observed years. Further, we utilize the data to project the pattern of change in firm size and group composition taking place over each observed period (for example, 1909-1919, 1919-1929, etc.) to an "equilibrium" size distribution—the distribution that would ultimately result if the process of change revealed in each period were allowed to work itself out over the long run. In order to obtain this result, the observed changes in firm size are placed in a probability framework appropriate for analysis as a Markov process.

A. *Distribution of Assets Among the 100 Largest Firms*

The relative size distribution of the 100 largest industrials has remained remarkably stable over the entire period. In Figure 1, the

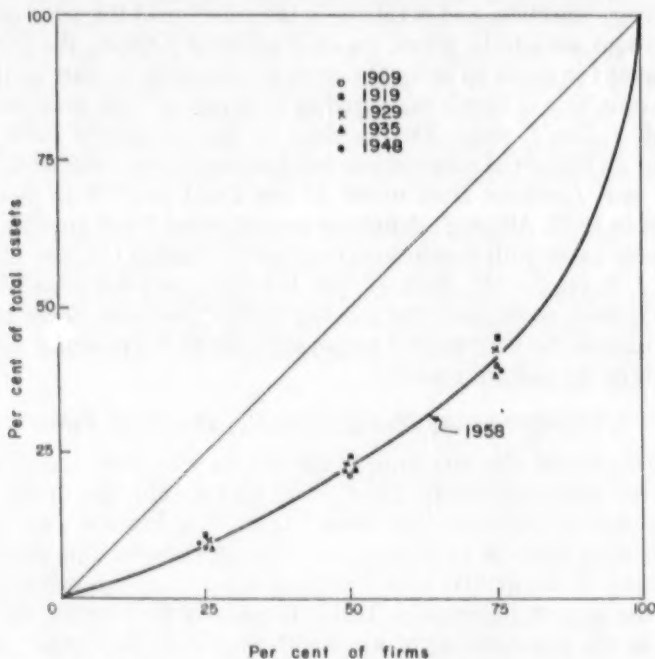


FIGURE 1. CUMULATIVE DISTRIBUTION OF ASSETS OF THE 100 LARGEST INDUSTRIALS, 1958; QUARTILE POINTS FOR SELECTED YEARS, 1909-1948

Lorenz curve for 1958 is shown together with quartile points of the size distributions for 1909, 1919, 1929, 1935, and 1948. The Lorenz curves for all of these years are virtually indistinguishable. The concentration ratios for the 4, 8, and 20 largest firms in each of these years also indicate this stability in the configuration of the size distribution, particularly since 1919 (Table 1, line 3). The decline in the ratios from

1909 to 1919 is due almost entirely to the declining relative size of United States Steel, the assets of which were greatly overvalued in 1909. Since 1919, the share of the 4 largest firms has dropped slightly and those of the 8 and 20 largest corporations have increased.

TABLE 1—CONCENTRATION, ENTRY, AND EXIT DATA ON 100 LARGEST FIRMS
IN MANUFACTURING, MINING, AND DISTRIBUTION UNITED STATES,
SELECTED YEARS, 1909–1958

	1909	1919	1929	1935	1948	1958
1. Total assets (million dollars)	8,339.6	17,573.8	29,406.4	25,183.9	49,189.3	109,376.2
2. Per cent assets of all industrial corporations ^a	(17.7) ^b	(16.6)	25.5	28.0	26.7	29.8
3. Concentration ratios ^a						
a. 4 largest	32.2	23.9	21.0	23.5	21.4	22.7
b. 8 largest	39.4	32.2	31.0	34.3	31.8	33.9
c. 20 largest	55.2	49.8	51.3	53.7	52.5	54.1
4. Exits ^d						
a. Number	40	31	16	20	16	
b. Per cent all assets	17.8	19.0	7.5	7.8	6.0	
5. Entrants ^d						
a. Number		40	31	16	20	16
b. Per cent all assets		31.3	18.5	5.6	8.9	8.2

^a Figures in parentheses are estimated from Internal Revenue Service data on total population of corporations through subtraction of corporations engaged in agriculture, transportation, public utilities, and finance. Data for 1929–1958 are based on corporations submitting balance sheets to the Internal Revenue Service. Because corporations were not permitted to file consolidated returns during 1934–1941 and did not uniformly do so prior to that period, the universe of total assets is overstated, and the share of the largest firms thus understated, to some extent in the earlier years studied here compared with 1948 and 1958.

^b Kaplan's figure was 24.6 [18, p. 126], based upon statistics for "all industrials" in *Report of Commissioner of Internal Revenue, 1910*: "total assets equal capitalization plus bonded indebtedness; the all-industrial category excludes construction."

^c Concentration ratio is the per cent of total assets of 100 largest firms held by the *N* largest firms.

^d Asset shares for the one year in each pair in which the firms in question were among the 100 largest.

B. Changes in the Identity of the 100 Largest Firms

Although the relative size distribution of the 100 largest industrials has not changed significantly since 1909, there has been considerable change in the identity of the firms that comprise this group. Between each pair of years for which observations were made, there were exits from, and a corresponding number of entrants to, the group. In this context, the terms "entry" and "exit" refer to the appearance on, and

departure from, the list of the giants. Rarely is an entering firm new in the economy, nor do exiting firms generally vanish completely except when their assets are merged with those of other enterprises.

The number and relative importance of the firms entering and leaving the list of the 100 largest between each pair of years are given in Table 1, lines 3 and 4. Note that while the 40 firms dropping off the list between 1909 and 1919 had 17.8 per cent of the assets of the giants in the earlier year, the 40 firms appearing first on the 1919 list had 31.3 per cent of the assets of the 100 largest firms in that year. Thus, the new firms appearing on the list tend to be larger relatively, as well as absolutely, than the firms they replace. This relationship holds for every period except 1929-1935. Departures from the list during this last period, as in no other, were due entirely to decreases in dollar asset values. In effect, the bottom of the list dropped down to include some smaller firms. As would be expected, movements on and off the list are much more frequent for the smaller giant firms than for the very largest. Of the 246 instances of exit and entry (out of a possible 1,000 that might have occurred) during the five periods, 109 or 44 per cent were ranked 81 to 100 in their last or first year of appearance among the giants.

The declining importance over time of entry and exit as a source of change in the list of giant firms and in the relative distribution of assets among them is clear from the data. With 123 replacements of firms on the list recorded over a 49-year period, an average of 25.1 changes in the list per decade might be expected. The first two periods clearly exceed this average. The six-year period 1929-1935 is approximately "average" in this sense (16 against an expected 15), and the last two periods are clearly low by this standard.³ A significant portion of the high entry-exit rate in the early periods can be traced to amalgamations and court-ordered dismemberments; however, adjustment for these factors does not entirely eliminate the contrast between the early and later periods (See Section II, below).

³The declining importance of entry and exit was evident in Kaplan's data, but the sharpness of the decline has been reduced somewhat by our revisions. Even so, it may be that some spurious entry-exit is still recorded. On the basis of material in *Moody's*, American Express Company is retained on the list in 1909 and 1919 but shifted off in 1929 because of its growing operations in finance. Both Greenwater Copper Mines and Development Company of America, cited by Stigler [31] as examples of spurious mobility reflecting the "effrontery of promoters," are retained on the 1909 list. The justification for this retention is that these companies can be adjudged insignificant only with the benefit of hindsight and that their exclusion in 1909 would require the exclusion of, for example, Cuba Cane Sugar in 1919 and 1929 because it went into bankruptcy prior to 1935. However, to the extent that the earlier periods were characterized by greater shifts of firms between industrial and financial activities and by great zeal on the part of promoters, entry-exit in the earlier periods may be somewhat overstated. If so, the noted decline in entry-exit is also overstated.

C. Movement within the Distribution

1. *Changes in Rank and Size-Order.* Correlation coefficients have been computed both between the rankings of identified firms from year to year and between the logarithms of the asset sizes. The correlation analysis was confined to those firms that appeared on the list in the first and last years of a single time period, and those surviving firms were reranked as required for each computation. Thus, we correlate rank orderings and sizes of 60 firms for the 1909-1929 period, 69 for the 1919-1929 period, and so on.

Spearman correlation coefficients for the rank orderings and product-moment coefficients for the logarithms of the asset sizes are presented in Table 2, line 1. If we neglect the higher value of the rank correlation coefficient for the shortest of the time periods, 1929-1935, there is a tendency for the rankings to become more stable in the later periods. This same increase in stability in size from year to year may be observed in the product-moment coefficients. Although a single correlation coefficient has little meaning, the computation of the same coefficient for groups of firms selected according to the same criteria over several periods yields a series of comparable statistics which may, at minimum, be interpreted as indicative of a trend. The increases in the coefficients actually observed justify the general observation that the surviving giant firms show a greater stability of size position in the last two periods than in the first two.

2. *Growth Rates of Entering and Surviving Firms.* The increasing stability of relative size position among the giant firms suggested by the correlation measures above is further supported by a comparative analysis of the growth rates of firms on the list in each of a pair of years (the surviving firms for the period) and firms appearing on the list during each period. Between 1909 and 1919, the assets of the 100 largest firms grew at an average annual rate of 7.74 per cent (Table 2, line 2a). The average annual growth rate of assets of the 60 surviving firms, however, was only 5.83 per cent (line 2b). Thus, the 40 firms that came onto the list of the giants between 1909 and 1919 grew at a considerably faster rate than those which remained on the list over the period, and this disparity in the growth rates resulted in significant changes in the relative positions of surviving firms. Thereafter, the survivors grew at approximately the same rate as the aggregate of the 100 largest firms, and the threat to the relative standing of surviving firms lessened.

The mean rate of growth for the individual firms surviving during each period and the standard deviation and coefficient of variation for the distributions of growth rates over each period are presented in lines 2c, d, and e of Table 2. Although the mean rate of growth of assets increased substantially during the last two periods, the striking feature

TABLE 2—CORRELATION COEFFICIENTS AND GROWTH RATES OF 100 LARGEST FIRMS

	1909- 1919	1919- 1929	1929- 1935	1935- 1948	1948- 1958
1. Correlation coefficients, assets of surviving firms					
a. Rank	.65	.70	.89	.83	.79
b. Product moment (logs)	.75	.79	.95	.89	.91
2. Growth rates					
a. Total assets, 100 largest firms (per cent change per year)	7.74	5.28	-2.55	5.28	8.32
b. Total assets, survivors (per cent change per year)	5.83	5.80	-2.22	5.19	8.09
c. Mean per cent rate of growth, survivors	3.92	3.78	-2.04	4.20	6.40
d. Standard deviation of per cent rates of growth, survivors	5.29	4.61	3.59	2.69	3.20
e. Coefficient of variation of per cent rates of growth, survivors	1.35	1.22	1.76	.64	.50

of this tabulation is the decline in the dispersion of growth rates among the surviving giants over the periods under study. The possibility that the variances of the several distributions might be obtained by random sampling from equally dispersed populations may be rejected at a confidence level of less than 1 per cent. The coefficient of variation, which measures the relative dispersion of each distribution about its own mean, clearly indicates the declining variability of growth rates among the surviving giants during the last two periods.

D. *Projection of Equilibrium Size Distribution*

The effect of relative size movements, both entry and exit of firms and internal mobility among a single group of firms, upon the ultimate shape of the size distribution of the industrial giants may be analyzed in terms of a Markov process.⁴ In employing the Markov analysis, we assume that firms in any particular size class remain in that class or move to other classes over time as a result of a stochastic process which may be expressed in terms of a matrix of transition probabilities. For present purposes, the *actual* pattern of size change noted from period to period is used to generate a matrix of transition probabilities for that period. Then the steady state or equilibrium distribution for each transition matrix is projected.

⁴A standard reference on Markov probability analysis is Kemeny, *et al.* [20]. This technique has previously been used in economics for the analysis of income distribution and has been adapted to the study of social mobility by Prais [28] and to the study of changing industry structure by Irma Adelman [1]. Another example of the application of this technique by the present writers may be found in [10]. The most general approach to the application of probability models to industry structure is to be found in the work of Newman and Wolfe [24] [25].

For example, we ask the question: What would be the eventual shape of the size distribution of the giant firms if the process of relative size change that occurred between 1909 and 1919 continued indefinitely? In order to answer this question, we assign all of the firms appearing on the list of the giants in either of the two years to size classes based upon their relative share of the total assets of the 100 largest firms in each of the two years. Arbitrarily, we establish the upper limit of the largest size class as being 100 per cent and determine successive classes such that the lower limit of each class is one-half its upper limit. Hence, the structure of possible size classes is determined as 50-100 per cent, 25-49.9 per cent, 12.5-24.9 per cent, etc. In addition, a "not-on-list" class is created that contains those firms that are not among the giants, including those that are about to enter the group and those that have just dropped below giant size. Using these size classes, we develop a table (Table 3) showing the number of transitional movements of firms from one size class to another over the decade.⁵

TABLE 3—CROSS-CLASSIFICATION OF THE 100 LARGEST INDUSTRIAL FIRMS BY THEIR RELATIVE SIZES IN 1909 AND 1919^a

Size of Firm in 1919	Size of Firm in 1909					Total
	Not on List	.195-.389	.39-.779	.78-1.559	1.56 and Larger	
Not on list		14	25	1		40
.195-.389	5		6			11
.39-.779	23	2	13	13		51
.78-1.559	8	1	3	10	5	27
1.56 and larger	4			5	2	11
Total	40	17	47	29	7	140

^a A firm's size is here defined as its share of the total assets of the 100 largest firms in the specified year. Thus, the size classes here shown refer to the percentage of total assets. For example, the class .39-.779 includes firms whose share of the total assets of the 100 largest was at least as large as .39 per cent but not as large as .78 per cent.

From the data in Table 3, we determine the relative frequency with which a firm in each size class either remains in that size class over the period or moves to some other. Taking these percentages to represent the probabilities that such shifts will occur in each of an indefinite number of subsequent periods, we compute the equilibrium size distribution. This distribution has the characteristic that, once attained, it

⁵ The data in this and similar tables for each period provide further evidence of the decline in internal mobility among the giant firms from period to period over the half century. The percentages of firms remaining in the same size class from one observed year to the next rose from 25 per cent in 1909-1919 to 58 per cent in 1948-1958. Percentages for other periods are as follows: 1919-1929, 31 per cent; 1929-1935, 59 per cent; 1935-1948, 46 per cent. These results exhibit exactly the same pattern of variation for period to period as the other indicators of internal mobility noted above.

will retain a constant profile in spite of continuous internal movements among the firms.*

The equilibrium size distribution may be interpreted as the logical long-term consequence of the forces operative upon the population of giant firms over the particular time period under analysis. Thus, we can analyze these results to determine whether the tendencies observed at work during the period are such as to lead toward a significant change in the size distributions in the long run. Further, we can compare the equilibrium distributions projected from different periods in order to discover differences between the patterns of movement during the periods themselves.

Using this technique, equilibrium distributions have been projected for each of the five time periods for two groups of firms—the 100 largest firms at each date, including the impact of entry and exit upon the distribution, and the surviving firms only over each period.

In Figure 2, the equilibrium distributions projected for the 100 largest firms for each of the periods are presented. For comparative purposes, the actual distribution for 1958 is also plotted. As was shown in Figure 1, the actual distributions for each of the observed years are so

*Three problems in the construction, interpretation, and solution of these matrices should be noted:

(1) Time intervals: The periods of time covered by our data are not all of equal length; hence, the matrices themselves are not directly comparable. No problem arises, however, in the comparison of the equilibrium distributions, all of which are the projected results of the repetition of the stochastic process over an indefinite number of periods.

(2) Size classes: The establishment of size classes is necessarily arbitrary and is significant because the size classes used determine the amount of movement recorded in the matrix and may also determine whether or not the matrix is regular. The procedure adopted here has been to construct size classes in terms of the share of each firm in the assets of the group at each point in time and to determine arbitrarily that a firm must move from one size class to another when its relative share of assets either doubles or falls by one-half.

(3) Regularity: In order that the equilibrium solution exist, be unique, and be independent of the initial configuration, the matrix must allow firms in each size class to move into every other size class in some finite number of periods (thus we are dealing with regular stochastic matrices). Size classes into which there is some positive probability of entering but from which there is no probability of exiting will eventually absorb all of the firms. The ability of a matrix constructed of size classes which make some sort of economic sense to yield a solution is actually a kind of test of the applicability of the Markov model to the data under analysis. Data that do not show a considerable amount of shifting about among size classes may be more appropriately analyzed in terms of some other model. In the data for the 100 largest firms over a half century, the forces of economic change have been sufficient to produce a considerable amount of internal shifting. However, in all of the matrices here analyzed, it has been necessary to collapse the largest size classes. The projections presented below thus fail to specify the distribution of firms and assets among the very largest size classes. The lack of an observed constituency for the "not-on-list-not-on-list" cell of the matrix might appear to raise an additional solvability problem. However, Irma Adelman has shown that the constituency of this cell has no effect upon the normalized values of the equilibrium frequencies in the positive size classes [1, p. 901, n. 16].

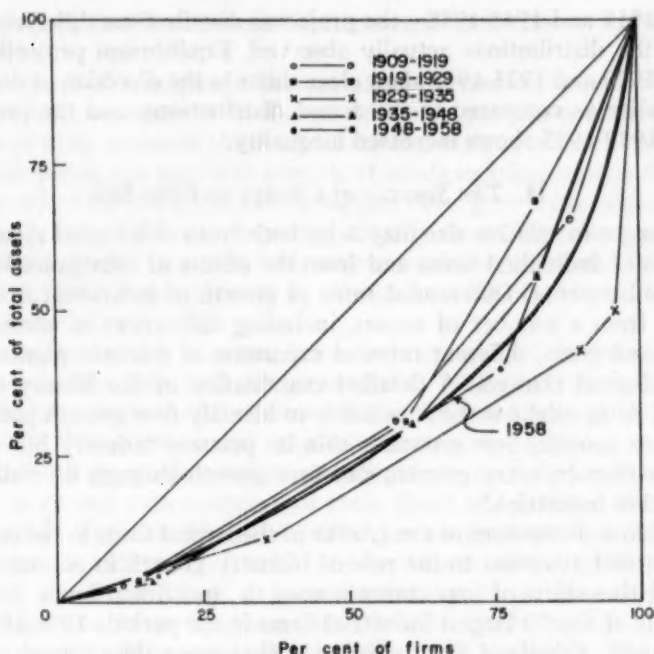


FIGURE 2. PROJECTED EQUILIBRIUM DISTRIBUTIONS, 100 LARGEST INDUSTRIALS, 5 PERIODS; ACTUAL CUMULATIVE SIZE DISTRIBUTION FOR 1958 PLOTTED FOR COMPARISON

similar that one Lorenz curve describes them all with reasonable accuracy. Hence, the 1958 distribution serves as the reference point for all of the projected distributions. A certain amount of disparity between the actual and projected distributions arises because of the greater detail in which the data for the upper tail of the actual distribution are available. Even with this qualification, however, three of the projected distributions—those for 1909-1919, 1919-1929, and 1935-1948—show significantly increased degrees of equality among the firms as compared to the distributions actually observed. The projected distribution from the 1948-1958 data is substantially the same as the actual distribution, and the projection from the 1929-1935 data is clearly in the direction of increased inequality. Hence, with one exception, the patterns of movement into, out of, and within the size distribution of the 100 largest firms over the period have been such as to maintain or slightly decrease the degree of inequality among them. The exception to this finding of a tendency toward stable or decreasing inequality is the short and unusual period 1929-1935.

A similar analysis has also been performed for the surviving firms over each period, and similar results were obtained. In two instances—

1909-1919 and 1948-1958—the projected distributions differ very little from the distributions actually observed. Equilibrium projections for 1919-1929 and 1935-1948 show clear shifts in the direction of decreased inequality as compared to the actual distributions, and the projection from 1929-1935 shows increased inequality.⁷

II. *The Sources of Change in Firm Size*

Changes in relative size may arise both from differential rates in the growth of individual firms and from the effects of amalgamations and dismemberments. Differential rates of growth of individual firms may result from a number of causes, including differences in management skills and goals, different rates of expansion of relevant markets, and technological changes. A detailed examination of the history of individual firms might make it possible to identify firm growth parallel to industry growth, firm growth within its primary industry but greater or less than industry growth, and firm growth through diversification into other industries.⁸

Previous discussions of the growth of the largest firms in the economy have called attention to the role of industry growth in accounting for the relative shifts of importance among the individual firms. From his analysis of the 50 largest industrial firms in the periods 1906-1928 and 1928-1950, Friedland [13] concluded that more than 60 per cent of the growth of giant firms could be attributed to the expansion of the industries in which they were engaged. This conclusion presents difficulties of interpretation for two reasons, as Friedland noted. First, it is impossible to separate cause and effect relationships; that is, the large firms' policies of innovation, aggressive marketing, and rapid expansion may have caused the growth of the industries in which they were engaged. Second, the increasing diversification of operations within the giant firms makes their assignment to industry groups a difficult task. An inspection of the Appendix data suggests an association between growing and declining industries and turnover among the giant firms. However, a definitive quantitative analysis of this association would require a detailed compilation of investment and output data classified according to industry or product for each firm over the entire time period. Census materials may make possible this type of analysis

⁷ Gini coefficients have not been used to compare these distributions because these coefficients are derived from the entire Lorenz curve, and our results involve the estimation of only a few points. Although a smooth curve could be fitted to our data, the presentation of Gini coefficients might convey an impression of accuracy of detail which our data do not in fact support.

⁸ These and other elements in the growth of an enterprise are lucidly analyzed by Edith T. Penrose in qualitative and theoretical terms [26]. The difficulties involved in a reliable quantitative analysis appear almost insuperable.

in the future, but for the past half century it is clearly out of the question.

The impact of amalgamations and dismemberments upon the giants can, however, be partially indicated. It is not possible from available data to identify in detail either all of the instances in which a new firm appeared among the giants as a result of amalgamations among smaller firms or all of the instances in which giant firms grew by amalgamation with small firms.⁹ We can, however, identify those firms that were removed from the list through amalgamation with another listed firm and, also, those firms that appeared on the list as a result of court-ordered dismemberments.

No amalgamations between firms both of which were among the 100 largest have occurred since the period 1929-1935, and only one firm resulting from a dismemberment has appeared among the giants since 1929. The numbers and relative importance of entrants and exits accounted for by amalgamations and dismemberments and the net record of entry-exit data exclusive of their direct and indirect effects are presented in Table 4. The peak period for amalgamations included in the analysis is 1919-1929. For all three periods in which amalgamations occurred, the firms dropping from the list due to amalgamations are larger than the firms dropping from the list due to lagging rates of internal growth. This is seen from the fact that the share of the firms amalgamated in the assets of all exiting firms exceeds their relative number. The impact of dismemberments on the list is due entirely to the 1911 court decisions in the Standard Oil and American Tobacco cases. The former resulted in 8 and the latter in 3 new appearances among the giants during 1909-1919. Two other oil companies appeared on the list at later dates—Continental Oil during 1919-1929 and Standard Oil (Ohio) during 1935-1948.

The subtraction of entrants and exits due to amalgamations and dismemberments alters the details, but not the general trend, of the entry-exit data. The number of exits during 1919-1929 is reduced to 22, much lower than the 37 during 1909-1919 but not very different from the 20 during 1935-1948. However, the share of total assets accounted for by these exiting firms was 12.2 per cent in 1919, whereas the 20 exiting firms during 1935-1948 accounted for only 7.8 per cent of total assets in 1935. Similarly, the number of entrants during 1909-1919 is reduced to 29, less than the 30 entrants during 1919-1929; but the share of assets accounted for by the 1909-1919 entrants was 23.5 per cent in 1919, compared to 17.8 per cent for the 1919-1929 entrants in 1929.

⁹ Many such instances can be identified by reference to the two detailed analyses of merger activity by Weston [32] and Nelson [231].

TABLE 4—IMPACT OF AMALGAMATIONS AND DISMEMBERMENTS UPON ENTRY AND EXIT DATA, 100 LARGEST FIRMS, FIVE PERIODS*

	1909-1919		1919-1929		1929-1935		1935-1948		1948-1958	
1. Disappearances due to amalgamations										
a. Number	3		9		4		0		0	
b. Total assets (million dollars)	129.2		1,155.3		717.8					
c. Per cent all assets	1.6		6.6		2.4					
d. Per cent all exiting firms	7.5		29.0		25.0					
e. Per cent assets, all exiting firms	8.7		34.6		32.5					
2. Appearances due to dismemberment										
a. Number		11		1		0		1		0
b. Total assets (million dollars)		1,433.0		198.0				237.4		
c. Per cent all assets		8.2		.7				.5		
d. Per cent all entering firms		27.5		3.2				5.0		
e. Per cent assets, all entering firms		25.7		3.6				5.4		
3. Gross entry-exit data, adjusted by lines 1 and 2 above										
a. Exits: Number	37		22		12		20		17	
Per cent all assets	16.2		12.2		5.1		7.8		6.5	
b. Entrants: Number		29		30		16		19		17
Per cent all assets		23.5		17.8		5.6		8.4		8.4
4. Net "natural" entrants and exits ^b										
a. Number	26	26	21	21	12	12	19	19	17	17
b. Per cent all assets	11.5	22.4	11.6	14.4	5.1	5.1	7.5	8.4	6.5	8.4

* Data tabulated under the one year in each pair in which the firms in question were among the 100 largest.

^b "Natural" entrants and exits are those which would have taken place without either the direct or indirect impact of amalgamations and dismemberments. For every firm which left the list because of an amalgamation, a new firm was drawn onto the list, and for every firm which appeared due to a dismemberment, an old firm was pushed off. Data in line 4 adjust the original figures for these secondary alterations in the list as well as the primary alterations adjusted for in line 3. The numbers of entrants and exits in each period thus balance and show a hypothetical record of entry and exit in the absence of mergers and dismemberments among the 100 largest firms.

Finally, if we eliminate both the entrants-exits due directly to amalgamations and dismemberments and also the subsidiary changes due to firms being drawn onto the list because of an amalgamation among the larger firms or pushed off the list because of the appearance of a new giant through dismemberment, the number of net entrants and exits shows a decline from 26 in the first period to 17 in the last. The percentages of total assets involved in entries and exits are also revised, but the downward trend remains. The effect of considering these sources of mobility external to the firm is thus to reduce the sharpness of the decline in the incidence and importance of entry and exit revealed in the earlier data but not to eliminate it.

III. *Comparison with British Experience*

It is interesting to compare the results obtained here with those obtained for Great Britain in the several studies of Prais and Hart. Their original investigation [17] was concerned with business units listed on the London Stock Exchange in the categories of "Breweries and Distilleries," "Commercial and Industrial," and "Iron, Coal and Steel." The size measure employed was total stock market valuation; and observations were made for the years 1885, 1896, 1907, 1924, 1939, and 1950. The number of listed companies increased from 60 to 2,103 during this period. The general finding of this study was that inequality of size among the listed companies tended to increase from 1885 to 1939 and to decline slightly from 1939 to 1950. Further, they found that the per cent of companies entering and leaving the listed sector tended, with one exception, to decline consistently from one period to the next. The exception was, not surprisingly, an unusually high rate of disappearances during the period 1924-1939. In response to the criticisms of Florence [12], Hart broadened the inquiry in a subsequent paper [16] to include the unlisted companies in manufacturing with profits used as the size measure. This paper tended to confirm the earlier findings, although it revealed an increase in the share of total profits accruing to the largest companies after 1950. This finding was confirmed by Prais [27, p. 262] in a study of the 100 largest listed companies in manufacturing and distribution, 1948-1953.

In spite of the differences in the periods covered and measures taken, the results of the present study bear some similarity to the results of the investigations by Hart and Prais. The inequality of market valuations for the British companies is only slightly greater in 1950 than in 1907, and the detailed data indicate that the inequality in 1950 would be reduced if only the largest listed firms were analyzed. Hence, over a roughly comparable period it may be concluded that the stability of the size distribution of the largest British industrial firms has

roughly paralleled that of the American.¹⁰ However, except for the possibly spurious increase in the share of the 100 largest firms in the assets of all United States industrial corporations between 1948 and 1958, our data do not reveal any evidence to parallel the recent increase in concentration among the largest firms in Great Britain suggested in the two later papers of Hart and Prais.¹¹

IV. Conclusions

The findings on internal size mobility, entry-exit among the giants, and projected changes in the shape of their size distribution are summarized qualitatively in Table 5. The actual size distributions, both of the 100 largest firms and of the survivors over each of the periods, have exhibited very little change throughout the period under study. In the face of this stability in the over-all configuration of firm sizes, the diversity revealed in the detailed results may be surprising. As compared with the last year of each period, the projected equilibrium distributions showed shifts in the direction of decreasing inequality of size among the giant firms in three of the periods, a clear tendency toward increasing inequality during the 1929-1935 decline from boom to depression, and little change in the most recent decade. The results for both the 100 largest firms and the survivors for each period are similar throughout. The amount of movement within the size distribution, as indicated by several measures, can be described as relatively high in the first three periods and relatively low in the last two. The rate of entry and exit among the giant firms can be described as

¹⁰ There is a further interesting parallel. Hart and Prais conclude that: "The typical experience of British industry in the past half century is that, over a ten-year period, about 21 per cent of firms double their size or do better, about 5 per cent quadruple their size or do better . . ." [17, p. 173]. Analysis of the rates of growth computed for the U.S. firms for each period reveals the following results for decade growth possibilities:

Period	Per cent of Firms with Growth Rates Sufficient, in a Decade, to:	
	Double or More	Quadruple or More
1909-1919	20	3
1919-1929	24	2
1929-1935	0	0
1935-1948	22	0
1948-1958	51	1

The British figures for the depression decade are also low, and their data do not include the inflationary decade of the 1950's. Hence, for the three comparable periods, the percentages of firms growing rapidly enough to double their size are virtually identical. This result may, of course, be due entirely to chance. The relative frequency with which firms quadrupled in size appears to be much greater in the British sample with its much larger number of smaller firms.

¹¹ Scattered data pointing to a recent increase in concentration in the United States are, however, cited in a recent note by Moses Rischin [29].

relatively high in the first two periods and relatively low in the last two.

The clearest long-run trends in the shape and stability of the size structure of the industrial giants during this half century are: (1) a decline in the frequency of change in the identities of the giant firms, (2) a decline in the frequency of change in relative size positions among the giants, and (3) a slight tendency for the giant firms to become more nearly equal in relative size. These findings are broadly consistent with the results obtained by others with respect to general trends of concentration in the economy. These results are, however, at sharp variance with the conclusions drawn by Kaplan and other defenders of the "new" competition.

TABLE 5—QUALITATIVE SUMMARY OF FINDINGS

Period	Projected Change in Degree of Equality (equilibrium distribution compared with actual distribution in last year of each period)		Internal Size Mobility (survivors)	Entry-Exit
	100 Largest Firms	Survivors Only		
1909-1919	increase	slight increase	high	high
1919-1929	increase	increase	high	high*
1929-1935	decrease	decrease	high	average
1935-1948	increase	increase	low	low
1948-1958	little change	little change	low	low

* For "natural" entry-exit only, the figure is high for share of assets involved, approximately average for number of firms.

Returning to the Kaplan statement quoted in the introduction of this paper, there is *considerable* reason to believe that firms now at the top of the industrial pyramid *are* more likely to remain there than were their predecessors. The evidence of mobility *does* accord with a general assumption that large-scale corporations enjoy an increasing amount of entrenchment of position by virtue of their size. Whether the increasing stability of position among the largest firms is due to their dynamic management policies and the institutionalization of innovation remains an open question, and it is certainly not to be concluded from this analysis alone that there has been any net decline in the scope and vigor of competition.

However, from the research methodology and substantive conclusions of this investigation, the comments of Simon and Bonini take on increased significance:

... The same equilibrium distribution [of firm sizes] may be produced with various degrees of mixing. . . . Public policy might be concerned with the amount of mobility rather than with the resulting degree of concentration . . . a measure of mobility . . . would appear to provide a better

index of what we mean by "equality of opportunity" than do the usual measures of concentration. [30, p. 616.]

The study of mobility presented here was developed directly in response to this suggestion, and it indicates with considerable clarity that, in spite of the stability of the usual concentration measures, there has been a significant decline in "equality of opportunity" in the upper reaches of the U.S. economy since the turn of the century.

REFERENCES

1. IRMA ADELMAN, "A Stochastic Analysis of the Size Distribution of Firms," *Jour. Am. Stat. Assoc.*, Dec. 1958, 53, 893-904.
2. M. A. ADELMAN, "A Current Appraisal of Concentration Statistics," *Jour. Am. Stat. Assoc.*, June 1958, 53, 568 (Summary of paper.)
3. ———, "FTC Report on Changes in Concentration of Manufacturing," *Jour. Am. Stat. Assoc.*, Sept. 1955, 50, 660-64.
4. ———, "The Measurement of Industrial Concentration," *Rev. Econ. and Stat.*, Nov. 1951, 33, 269-96. Reprinted in Heflebower and Stocking, ed., *A.E.A. Readings in Industrial Organization and Public Policy*, Homewood, Ill., 1958.
5. ———, "Note on Corporate Concentration and Turnover," *Am. Econ. Rev.*, June 1954, 44, 392-96.
6. J. S. BAIN, *Industrial Organization*. New York 1959.
7. A. A. BERLE AND G. C. MEANS, *The Modern Corporation and Private Property*. New York 1933.
8. J. M. BLAIR, "Statistical Measures of Concentration in Business," *Bull. Oxford Univ. Inst. Stat.*, Nov. 1956, 18, 351-72.
9. *Business Concentration and Price Policy*. A Conference of the Universities-National Bureau Committee for Economic Research. Princeton 1955.
10. N. R. COLLINS AND L. E. PRESTON, "The Structure of Food Processing Industries, 1935-1955," *Jour. Indus. Econ.*, July 1961, 9, 265-79.
11. C. D. EDWARDS, Review of *Big Enterprise in a Competitive System*, by A. D. H. Kaplan, *Univ. Pennsylvania Law Rev.*, May 1955, 103, 991-98.
12. P. S. FLORENCE, "New Measures of the Growth of Firms," *Econ. Jour.*, June 1957, 67, 244-48.
13. SEYMOUR FRIEDLAND, "Turnover and Growth of the Largest Industrial Firms, 1906-1950," *Rev. Econ. Stat.*, Feb. 1957, 39, 79-83.
14. R. A. GORDON, *Business Leadership in the Large Corporation*. Washington 1945.
15. P. E. HART, "On Measuring Business Concentration," *Bull. Oxford Univ. Inst. Stat.*, Aug. 1957, 19, 225-48.
16. ———, "Business Concentration in the United Kingdom," *Jour. Royal Stat. Soc.*, 1960, Ser. A, 123 (1), 50-58.
17. ——— AND S. J. PRAIS, "The Analysis of Business Concentration: A Statistical Approach," *Jour. Royal Stat. Soc.*, Oct. 1956, Ser. A, 119, 150-75.

18. A. D. H. KAPLAN, *Big Enterprise in a Competitive System*. Washington 1954.
19. CARL KAYSER, Review of *Big Enterprise in a Competitive System*, by A. D. H. Kaplan, *Explor. Entr. Hist.*, 1955, 7, 237-41.
20. J. G. KEMENY, *et al. Finite Mathematical Structures*. Englewood Cliffs 1959.
21. J. W. MARKHAM, Review of *Big Enterprise in a Competitive System*, by A. D. H. Kaplan, *Am. Econ. Rev.*, June 1955, 45, 448-51.
22. E. S. MASON, *Economic Concentration and the Monopoly Problem*. Cambridge 1957.
23. R. L. NELSON, *Merger Movements in American Industry, 1895-1956*. Princeton 1959.
24. PETER NEWMAN, "The Erosion of Marshall's Theory of Value," *Quart. Jour. Econ.*, Nov. 1960, 74, 587-600.
25. ——— AND J. N. WOLFE, *An Essay on the Theory of Value* (Inst. Quantitative Research in Econ. and Management Paper VI.) Lafayette, Ind. 1960. (Processed.)
26. E. T. PENROSE, *The Theory of the Growth of the Firm*. Oxford 1959.
27. S. J. PRAIS, "The Financial Experience of Giant Companies," *Econ. Jour.*, June 1957, 67, 249-64.
28. ———, "Measuring Social Mobility," *Jour. Royal Stat. Soc., Ser. A*, July 1955, 118 (1), 56-66.
29. M. A. RISCHIN, "A Note on Trends in Industrial Concentration in the United States, 1948-1956," *Antitrust Bull.* July-Aug. 1959, 4, 513-20.
30. H. A. SIMON AND C. P. BONINI, "The Size Distribution of Business Firms," *Am. Econ. Rev.*, Sept. 1958, 48, 607-17.
31. G. J. STIGLER, "The Statistics of Monopoly and Merger," *Jour. Pol. Econ.*, Feb. 1956, 64, 33-40.
32. J. F. WESTON, *The Role of Mergers in the Growth of Large Firms*. Berkeley 1953.

APPENDIX

ASSET SIZES AND RANKS OF THE 100 LARGEST INDUSTRIAL FIRMS, 1909-1958

This list of the largest industrial firms by asset sizes is a revision and extension of the list presented by A. D. H. Kaplan in *Big Enterprise in a Competitive System* [18]. The specific comments of a number of critics have been taken into account and all of the data checked through *Moody's Industrials*. Where there were unexplained discrepancies in the data, the *Moody's* figure was accepted as the more accurate. Where preliminary figures were initially reported in *Moody's* and subsequently revised, the revised figures have been used. Asset figures were taken for December 31 of the specified year or for the fiscal year-end closest to that date and within the period from June 30 of the specified year through June 29 of the year following. In a few instances, absence of data has dictated the use of a more remote figure or an average of two figures on either side of the desired date. In a few instances in the early years, Kaplan presented data for which no contrary or corroborative evidence could be found. These data were retained in the present list. For the 1958 list, the *Fortune* list of the nation's 500 largest firms was used in the same way, with a cross-check through *Moody's*. It is recognized that the use of *Moody's* figures introduces problems due to variations in accounting practices and the treatment of subsidiaries. Wherever there was a choice, the highest possible degree of consolidation has been used and only operating companies have been included.

THE 100 LARGEST INDUSTRIAL FIRMS, SELECTED YEARS, 1909-1958
(assets in million dollars)

Firm	1909		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
Allied Chemical and Dye	25.0	100			387.6	17	400.1	13	338.6	41	748.3	43
Allied Stores									165.4	97		
Allis-Chalmers	54.4	42	61.0	99			73.2	100	253.9	65	468.6	78
Aluminum Company of America			125.0	49	234.7	38	223.0	28	503.6	28	1,337.3	22
American Agricultural Chemical	55.1	41	110.7	56								
American Can	90.4	21	135.1	41	191.3	49	209.1	30	275.8	57	837.2	31
A.C.F. Industries	100.9	17	139.5	37	119.0	83	94.5	86	189.9	83		
American Cotton Oil	38.0	66	62.9	97								
American Cyanamid									212.0	77	584.3	60
American Express	45.9	53	63.1	96								
American Hide and Leather												
American Ice	37.7	69										
American Linseed	30.8	86										
American Locomotive	33.9	79										
American Locomotive	68.7	35	93.2	67	106.2	96						
American Malt	34.1	77										
American Rad. & Stand. Sanit.												
American Smelting and Refining	118.7	12	215.3	20	226.8	39	159.1	53	171.3	92	427.3	84
American Steel Foundries	25.9	96			241.1	35	173.8	45	290.4	54		
American Sugar Refining	124.3	9	147.4	35	157.1	66	117.7	72	686.7	18	795.6	37
American Tobacco	286.0	3	206.1	22	265.4	28	264.2	24				
American Viscose									226.9	72		
American Woolen	86.0	23	133.2	42	114.0	88						
American Writing Paper	42.2	56										
Anaconda	170.2	6	254.2	16	764.2	5	581.5	9	660.3	20	1,056.6	23
Armco Steel					28.8	75	123.0	66	316.2	48	896.9	27

Firm	1909		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
Armour and Company	124.8	8	490.8	3	452.3	15	317.1	20	447.7	30	412.5	88
Associated Oil	59.6	38	88.1	74								
Atlantic Gulf and W. Indies S.S.L.	81.1	26	104.9	59								
Atlantic Refining			95.4	65	167.2	56	163.0	51	382.6	34	770.8	40
Baldwin Locomotive Works	41.9	57	65.0	93								
Bethlehem Steel	68.9	34	357.2	6	801.6	4	673.1	7	1,029.0	12	2,195.1	12
Boeing Airplane											605.3	58
Borden	40.0	63	60.5	100	175.4	54	120.1	67	242.2	67	364.7	96
Borg-Warner							76.4	97			399.3	92
Brown												
Burlington Industries									176.8	88	483.6	74
Calumet and Hecla Cons. Copper	57.8	40	100.0	61								
Cambria Steel	63.9	37									494.2	73
Caterpillar Tractor									256.7	64	352.8	100
Celanese Corporation of America												
Chicago Jct. Rys. & Union Skyds.	30.9	85										
Chile Copper			153.5	33			193.5	33	541.4	25	1,337.5	20
Chrysler			70.3	89	209.7	46	79.1	94				
Climax Molybdenum									205.0	79		
Coca-Cola												
Colorado Fuel and Iron	100.6	18	82.6	80								
Consolidation Coal (original)	74.5	30	135.1	40								
Consolidation Coal (Pittsburg)	105.6	15	161.0	27	171.6	55	142.2	58	167.7	95	362.1	98
Continental Can							94.6	85	221.7	75	688.2	49
Continental Oil					198.0	48	91.7	88	261.9	61	619.7	57
Copper Range	40.9	58										
Corn Products Refining	97.2	19	138.1	38	126.7	77	118.7	69				
Crane			65.5	92	115.9	86	95.2	84				
Crown-Zellerbach					117.7	84	102.2	79	167.3	96	564.9	63
Crucible Steel Company of America	54.2	43	130.0	45	124.4	78	109.1	75				

[illegible]

Firm	1969		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
Hearst Consolidated Publications												
Houston Oil of Texas	36.9	71			103.2	97	128.6	62	161.2	100		
Inland Steel							118.3	71	292.8	53	716.4	47
Intercontinental Rubber	33.8	80										
International Business Machines									242.1	68	1,340.4	19
International Harvester	172.8	5	266.7	13	384.1	18	365.2	15	671.8	19	1,025.7	24
International Match					217.6	43						
International Mercantile Marine	202.5	4	268.6	12								
International Nickel	32.6	82	64.6	94	181.9	52	210.6	29	323.3	43	547.6	66
International Paper	70.8	33	87.8	76	333.3	24	247.6	26	323.2	44	891.5	28
International Salt	26.3	95										
International Shoe					111.4	89	83.2	90				
International Steam Pump	46.8	52			222.0	42	185.0	39	379.1	35	798.9	36
Jones and Laughlin Steel	45.0	54	120.0	52							754.4	41
Kaiser Aluminum and Chemical												
Kaiser Steel												
Kennecott Copper												
Koppers			135.6	39	337.8	23	323.6	18	575.4	24	482.0	75
S. S. Kresge					250.0	32	177.3 *	43			825.7	32
Lackawanna Steel	88.2	22	95.4	64	109.5	93	118.5	70	189.0	84		
Lake Superior												
Lehigh Coal and Navigation	53.6	44					97.7	80				
Lehigh Valley Coal	46.8	51	85.2	78								
Lehigh and Wilkes-Barre Coal	37.2	70			110.9	90						
Libby, McNeill and Libby	37.9	68	67.8	90								
Liggett and Myers Tobacco			155.1	30	160.1	64	170.5	46	425.0	31	409.1	89
Lockheed Aircraft											508.5	71
Loew's												
Long-Bell Lumber					124.2	80	128.6	61	223.1	73		
P. Lorillard Company			88.3	72	116.2	85						
					110.0	92						

Firm	1909		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
R. H. Macy			182.0	23			90.5	89				
Magnolia Petroleum												
May Department Stores									198.9	81		
Mexican Petroleum	39.9	64	76.8	86								
Midvale Steel and Ordnance			280.2	10								
Midwest Refining			86.0	77								
Minnesota and Ontario Paper							78.2	95				
Monsanto Chemical									177.0	87	664.1	52
Montgomery Ward			70.7	88	187.6	50	168.7	47	578.9	23	738.1	46
Morris	47.6	50	114.0	54								
National Biscuit	65.3	36	77.7	85								
National Dairy Products					133.2	72	124.5	64	161.8	99	573.9	62
National Distillers and Chemical	59.1	39			224.5	41	192.0	36	317.6	46	497.3	72
National Enameling and Stamping	30.2	89							214.6	76		
National Lead	50.0	47	88.1	75	108.5	94	104.0	77	183.5	85	361.2	99
National Steel												
New England Navigation	92.5	20			120.8	81	180.5	42	329.9	42	699.0	48
New River	32.5	83										
New York Dock	30.4	88										
Ohio Oil			81.7	81	110.7	91	139.7	59	203.4	80	400.2	91
Olin Mathieson Chemical												
Owens-Illinois Glass											786.8	38
Packard Motor Car									180.3	86	455.2	79
Paramount Pictures			63.1	95								
Pennsylvania Steel	27.4	93			236.7	36	118.9	68	173.7	90		
J. C. Penny												
Phelps Dodge							74.5	98	264.7	60	415.7	86
Phil. and Reading Coal and Iron	49.4	49	247.3	17	242.9	34	185.1	38	274.4	58	425.7	85
Phillips Petroleum					129.0	74	93.0	87				
Pittsburgh Plate Glass	28.9	90			145.4	68	174.5	44	579.3	22	1,515.5	16
					101.7	99	109.7	74	227.3	71	561.4	65

Firm	1909		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
Prairie Oil and Gas			130.2	44	209.8	45						
Prairie Pipe Line			67.0	91	181.9	53						
Pressed Steel Car	35.0	73							316.4	47	804.9	35
Procter and Gamble			102.5	60	133.2	71	127.1	63	194.7	82		
Pullman	122.7	10	171.3	26	315.6	26	258.6	25				
Pure Oil			131.7	43	215.4	44	157.2	54	271.0	59	535.0	70
Radio Corporation of America					158.7	65	102.5	78	248.2	66	751.5	42
Railway Steel Spring	34.8	74										
Remington Typewriter	25.2	99										
Republic Steel	73.3	31	125.8	48	331.8	25	297.5	21	489.1	29	988.0	25
Reynolds Metals												
R. J. Reynolds Tobacco			107.7	58	163.2	62	153.9	55	530.7	26	853.0	30
Richfield Oil					132.0	73					743.3	44
St. Regis Paper							73.7	99			414.6	87
Schenley Industries									342.0	40	393.4	93
Joseph E. Seagram and Sons											440.1	82
Sears, Roebuck									301.0	50	431.8	83
Shell Oil	53.3	45	154.8	31	251.8	30	234.0	27	789.3	13	2,036.5	13
Sinclair Crude Oil Purchasing					662.0	10	358.1	16	640.6	21	1,648.3	14
Sinclair Oil			265.4	14	120.4	82						
					400.6	16	331.1	17	710.1	16	1,499.9	17
Singer Manufacturing												
Skelly Oil	113.2	13	160.0	28	182.9	51	163.4	50	209.1	78	446.6	80
Socony Mobil Oil			299.6	9	708.4	7	789.7	4	169.0	93	380.1	95
Sperry Rand									1,443.0	5	3,237.3	5
Standard Oil (California)			174.3	25	604.7	12	579.5	10			743.2	45
									1,074.5	11	2,451.1	10
Standard Oil (Indiana)			154.7	32	697.0	8	693.5	5				
Standard Oil (New Jersey)			853.4	2	1,767.4	2	1,894.9	1	1,500.0	4	2,769.3	9
Standard Oil (Ohio)	371.7	2							3,526.0	1	9,478.7	1
Steel & Tube Company of America			99.9	62					237.4	69	404.2	90
J. P. Stevens									164.4	98		

COLLINS AND PRESTON: SIZE STRUCTURE OF FIRMS 1011

Firm	1909		1919		1929		1935		1948		1958	
	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank	Assets	Rank
Studebaker			88.1	73	134.2	70	107.1	76	278.6	56	666.9	51
Sun Oil											540.8	69
Sunray Mid-Continent Oil	112.9	14	489.5	4	351.3	22	321.4	19	522.5	27	584.9	59
Swift	28.3	91	261.3	15	609.9	11	473.8	11	1,277.1	6	3,111.5	6
Texas											810.7	34
Tidewater Oil	26.4	94			251.4	31	182.8	41	287.7	55		
Twentieth Century-Fox Film					124.2	79			168.7	94		
Union Bag and Paper	33.5	81										
Union Carbide			212.0	21	353.6	21	271.1	23	722.7	15	1,530.5	15
Union Oil Company of California	78.3	27	89.7	70	370.4	20	151.7	56	298.4	51	684.6	50
United Aircraft											470.0	77
United Copper	50.0	48			102.0	98						
United Drug			147.7	34	226.0	40	184.9	40	319.7	45	391.1	94
United Fruit	40.8	59	79.3	84			96.4	82				
United Shoe Machinery	40.1	62										
U. S. Cast Iron Pipe and Foundry	31.5	84										
U. S. Leather	138.3	7	146.9	36								
U. S. Realty and Improvement	30.8	87										
U. S. Rubber	120.9	11	319.5	8	307.9	27	159.3	52	348.5	37	627.9	56
U. S. Smelting, Refining & Melting	52.1	46	90.9	69								
U. S. Steel	1,822.0	1	2,365.9	1	2,286.2	1	1,822.4	2	2,535.0	3	4,632.8	3
United Cigar Stores					114.4	87						
Utah Copper			79.3	83								
Vacuum Oil			79.6	82	205.7	47						
Virginia Carolina Chemical	72.1	32	121.2	50								
Warner Brothers Pictures					167.2	57	168.5	48	176.3	89		
Wells Fargo	37.9	67									1,337.4	21
Western Electric	43.1	55	128.5	46	373.4	19	273.7	22	786.0	14		
Westinghouse Electric	83.6	24	159.7	29	253.9	29	194.5	32	693.6	17	1,411.5	18
Weyerhaeuser Timber									231.6	70	577.6	61
Wheeling Steel			112.9	55	128.4	76	113.0	73	172.2	91		
Wilson			127.0	47			79.2	93				
F. W. Woolworth	28.0	92	94.1	66	165.4	59	192.3	34	342.3	39	561.9	64
Youngstown Sheet and Tube			115.0	53	235.7	37	207.5	31	311.7	49	660.2	53

THE SIMULTANEOUS DETERMINATION OF SPOT AND FUTURES PRICES

By JEROME L. STEIN*

This paper develops a simple geometric technique for the simultaneous determination of spot and futures prices in commodity markets; and it explains the allocation between hedged and unhedged holdings of stocks. On the basis of this analysis, it is possible to determine whether changes in spot and futures prices have occurred as a result of (a) changes in the excess supply of current production, or (b) changes in price expectations.

The possessor of stocks has two alternatives. He may contract to sell a given physical entity at a stated price, or he may hold stocks for sale at a later date at an uncertain price. If the first alternative is chosen, he may sell either *spot* or *forward*. A forward sale involves delivery at a later date; any storage that the seller is performing is merely a service to his customer.

If the second alternative is chosen, he may hold his stocks either hedged (by selling a *futures* contract) or unhedged; but this form of stockholding involves an uncertain expected return and a probability of a capital loss. Consequently, the owner of stocks will allocate his stocks between hedged and unhedged holdings to maximize his expected utility.

This paper is concerned with both alternatives: the spot sale and the holding of stocks for sale at a later date. Part I develops a theory of holding stocks. It is shown how the possessor of a given quantity of stocks allocates his holdings between hedged and unhedged stocks. Thereby, the supply of hedged and unhedged storage is derived.

Part II discusses the spot and futures markets. Two curves are developed to determine simultaneously the spot and futures prices. One curve gives the pair of spot and futures prices which equilibrate the supply and demand for storage. The other curve gives the pair of spot and futures prices which equilibrate the supply and demand for futures contracts. Equilibrium exists where the two curves intersect.

Part III indicates how these prices are affected by (1) variations in the supply and demand for current production, and (2) changes in the prices expected to prevail at a later date.

Throughout this paper, pure competition is assumed to prevail.

* The author is associate professor of economics at Brown University. He is indebted to M. J. Brennan for stimulating comments on an earlier draft of this paper.

I. The Decision to Hold Hedged and Unhedged Stocks under Pure Competition

A. Unhedged Holding of Stocks

The expected gain from holding unhedged stocks (u) is equal to the spot price expected to prevail at a later date (p^*) minus the current spot price (p) minus the marginal net carrying costs. There are two components of the marginal net carrying costs: the marginal costs of storage and the marginal convenience yield, the latter a negative element in carrying cost. The concept of the marginal convenience yield has been developed by Brennan [1, pp. 53-56] and Telser [4, pp. 235-37]. Since the convenience yield is a measure of the advantage (to the producer, processor, or wholesaler) of having stocks readily available, it depends upon the total quantity of stocks carried—hedged and unhedged. Since the marginal convenience yield is negatively related to the total quantity of stocks carried, the marginal net carrying costs rise with the total quantity of stocks held [1] [4].

The variable p^* is a stochastic variable. There is a probability that a capital loss will be made on the holdings of unhedged stocks: i.e., that $p^* - p - m$ will be negative.

B. The Holding of Hedged Stocks

When stocks are hedged, the owner incurs a liability to offset his holding of assets (stocks). His liability is the sale of a futures contract, for the delivery of one of several grades of a commodity sometime within the period of the futures contract. The owner of hedged stocks does not intend to deliver a physical commodity in fulfillment of his futures contract, but intends to repurchase a futures contract at the time that he sells his inventory of stocks [2, Ch. 12-14] [3, p. 153] [6]. The expected gain from holding hedged stocks is equal to the expected gain from holding unhedged stocks minus the expected loss involved in the sale and purchase of a futures contract. At worst, the holder of hedged stocks can deliver one of several grades of a physical commodity in fulfillment of the futures contract, at a premium or a discount to the contract price [2, pp. 33-34].

Let q be the current price of a futures contract and q^* be the price of the futures contract expected at a later date. Then, the expected gain from holding hedged stocks is h ,

$$(1) \quad h = (p^* - p) - (q^* - q) - m.$$

The firm buys stock at p and sells a futures contract for q . The marginal net carrying costs are m . The firm expects to sell the stock at p^* and repurchase its futures contract for q^* . In the event that it costs more to repurchase the futures contract than can be received

from the sale of the unit of stock, it is cheaper to make delivery on the futures contract than to repurchase it, provided that the futures contract permits the delivery of the commodity which is held in storage. In this way, hedging may bound the possible losses that can be suffered in connection with holding stocks. The expected gain from holding hedged stock, h , can be written:

$$(2) \quad h = u - (q^* - q) \geq q - p - m.$$

The term $q - p - m$ is the cost of delivering the basic grade on the futures contract.

There are two stochastic variables involved in h : p^* , the expected commodity price, and q^* , the expected price of the futures contract. Inventory losses can be made on hedged inventory, despite the fact that the loss is bounded at $q - p - m$.

C. *The Optimum Combination of Hedged and Unhedged Stocks*

An owner of stocks, for sale at an uncertain price, is assumed to allocate his holdings between hedged and unhedged stocks so as to maximize his expected utility. The method of optimizing developed here is based upon James Tobin's theory of liquidity preference [5, pp. 71-77].

As the proportion of unhedged stock varies between zero and 100 per cent, the expected return per unit of stock varies from h to u . Risk is inherent in each form of stockholding, where risk is defined as the situation whereby the owner may fail to receive his expected return. Many different measures of risk are possible. Tobin [5, p. 72] used the standard deviation of the expected return as his measure of risk. Since he assumed that the probability density functions are symmetrical, a high standard deviation or variance means a high probability of both negative and positive deviations from the mean. Other reasonable measures of risk, which emphasize the disutility aspects of uncertainty, are the probability of loss or the expected value of the loss. These two measures of risk do not presuppose symmetrical density functions. For expositional convenience I shall use the variance of the expected return as a measure of risk, with the assumption that the density functions are symmetrical.

An owner of a unit of unhedged stock has a risk equal to the variance of u . Given p and m , the variance of u is equal to the variance of p^* . The possessor of a unit of hedged stock has a risk equal to the variance of h . Given p , m and q , this is equal to: $\text{var } p^* + \text{var } q^* - 2 \text{ cov } p^*q^*$. As the proportion of unhedged stocks varies from zero to 100 per cent, the risk varies from $\text{var } p^* + \text{var } q^* - 2 \text{ cov } p^*q^*$ to $\text{var } p^*$.

An opportunity locus for expected return and risk, facing the owner

of 100 units of stock, is given by line HU in Figure 1. At point H all of the stocks are hedged, giving an expected return of h and a risk of var h . At point U all of the stocks are unhedged, giving an expected return of u , and a risk of var u . As the ratio of unhedged to total stocks rises (see the scale at the top of Figure 1), the combination of expected return and risk is given by opportunity locus HU . In this diagram it is assumed that unhedged stocks are both riskier and carry a higher expected return than hedged stocks, thereby making line HU positively sloped. There is no reason why line HU could not be nega-

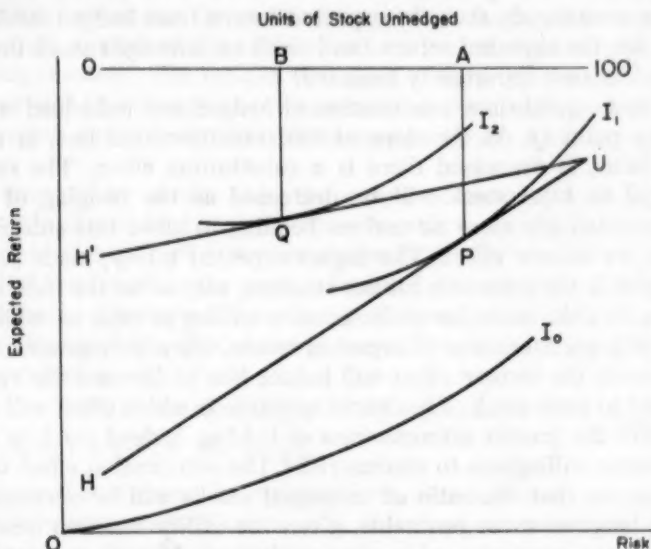


FIGURE 1

tively sloped. In such a case (as will be apparent from the argument below) no unhedged stocks would be carried. Points H and U are based upon given price expectations and risks. As price expectations change, points H and U will move accordingly.

The indifference curve between expected return and risk will be convex—rising at an increasing rate—if the individual has a declining marginal utility of income and a total utility function which can be approximated by a quadratic. The proof of this proposition is given by Tobin [5, pp. 76-77].¹ A family of such indifference curves is given in Figure 1. Given the risk—a point on the abscissa—a higher expected

¹Tobin also considers individuals with constant and rising marginal utility of incomes, i.e., individuals with indifference curves which do not rise at increasing rates. I shall restrict the present analysis to individuals with declining marginal utility schedules.

return implies a higher expected utility of income; the utility expected from the ownership of 100 units of stock rises as we rise vertically in Figure 1. Curve I_2 is preferred to curve I_1 because expected utility is greater along curve I_2 than along curve I_1 .

Point P represents the optimum combination of hedged and unhedged stock, given opportunity locus HU and the indifference map, since expected utility from 100 units of stock is maximized at this point. The individual will hold OA units unhedged and $100 - OA$ units hedged.

Suppose that the price of a futures contract rises, other things remaining unchanged; then the expected return from hedged stock rises to H' ; but the expected return (and risk) on unhedged stock does not change. The new opportunity locus is $H'U$.

The new equilibrium combination of hedged and unhedged stock is given by point Q . As the slope of the transformation line, or opportunity locus, is decreased there is a substitution effect. The ratio of unhedged to total stock will be decreased as the hedging of stock becomes relatively more attractive. Tending to offset this substitution effect is an income effect. The higher expected utility, made possible by the rise in the price of a futures contract, may affect the individual's aversion to risk. In so far as he is more willing to take an additional unit of risk per increment of expected return, when his expected utility is increased, the income effect will induce him to increase the ratio of unhedged to total stock. The crucial question is which effect will dominate? Will the greater attractiveness of holding hedged stock be offset by a greater willingness to assume risk? The substitution effect will be dominant, so that the ratio of unhedged stocks will be decreased as hedging becomes more profitable, given the utility function described above and the occurrence of tangency solutions. *Mutatis mutandis*, the proof of this proposition is found in Tobin [5, p. 79].

D. The Demand for Stocks or the Supply of Storage

The total quantity of stocks demanded by owners of stocks (i.e., the supply of storage) is assumed to be an increasing function of the maximum expected utility derived from holding stocks. Initially, the maximum expected utility from holding 100 units of stock was given by I_1 . When the expected return from holding hedged stocks is increased, the maximum expected utility from holding 100 units of stock is given by I_2 , which is preferred to I_1 . As the expected utility from stockholding is increased, the total quantity of stocks demanded (i.e., storage supplied) will also increase.

Storage will only be supplied if the maximum expected utility from storage exceeds the utility derived from a spot sale. Consider an in-

difference curve I_0 (in Figure 1) passing through a point $O (= 0, 0)$ with an expected return of 0 and a risk of zero. This curve will be convex, under the assumptions made above. No stocks will be held for later sale at an uncertain price unless the opportunity locus is tangent to an indifference curve which is preferred to I_0 . In the event of a corner solution, stocks will be held only if the highest attainable indifference curve is preferred to I_0 .

A rise in the maximum expected utility will also occur if the opportunity locus HU , fixed at H , rotates in a counterclockwise direction. For example, suppose that p^* and q^* rose by equal amounts; then, all other things remaining the same, the expected return from unhedged storage rises relative to the expected return from hedged storage—risk remaining constant. The ratio of unhedged to the total stocks will rise; and there will be an increase in the total quantity of stocks demanded. Both income and substitution effects operate in the same direction in this case.

The demand for stocks (i.e., the supply of storage) then depends upon points H and U . Given the risks ($\text{var } h, \text{var } u$), the demand for stocks rises with (1) $p^* - p - m$, and with (2) $(p^* - q^*) + (q - p) - m$. The first term is the expected return derived from holding unhedged stock; the second term is the expected return derived from holding hedged stock. The demand for stocks in the market (S_D) is given by equation (3):²

$$(3) \quad S_D = U(p^* - p - m) + H[(p^* - q^*) + b - m]; \quad U' > 0, H' > 0, \\ \text{where } b = q - p, \text{ the spread.}$$

U is the market demand for unhedged stock and H is the market demand for hedged stock. That is, U is the supply of unhedged storage and H is the supply of hedged storage.

E. The Duality of Long and Short Hedging

There are people, such as millers, who have contracted to sell a certain number of units forward at a fixed price. A miller contracts to sell x units of flour for p dollars, to be delivered in (say) 90 days. His stock of flour is $-x$ units, just as the stock of the individual in Figure 1 was $+100$ units. The miller does not know the exact price at which he will be able to purchase his wheat. His gross profit will be $p - p^*$, where p^* is the price at which he expects to purchase the wheat. A miller can hedge by purchasing a wheat future contract at price q , at the time that the flour is sold forward. His expected return

² The process of aggregation is difficult in so far as expectations of individuals differ. Let p^* and q^* refer to the "average" expectations, appropriately weighed, of those who are in the business of supplying storage. See Telser [4, pp. 239-40] on this point.

is $(p - q) + (q^* - p^*)$, where q^* is the price at which he expects to sell the wheat futures contract.

The miller, i.e., the potential long hedger, holds a negative quantity of stock. Moreover, the expected return from his hedged or unhedged position is the negative of the short hedger discussed in the sections above (excluding the marginal net carrying costs).

On the basis of the analysis described in Figure 1, the potential long hedger (e.g., miller) can determine (1) how much of his short position should be covered by the purchase of a wheat futures contract and (2) how many units of flour he should sell short. The first problem is solved by hedging that proportion which will maximize his expected utility—exactly as described above. The second problem is solved by varying his short sales on the basis of the maximum expected utility that he can derive from a short position, where he hedges the proportion called for in the answer to the first problem. The position of the long hedger is the negative of the position of the short hedger, and the same method of analysis is applicable in both cases.

II. Market Equilibrium

Market equilibrium prevails when (1) the quantity of stocks demanded (i.e., the supply of storage) is equal to the quantity of stocks in existence (i.e., the demand for storage) and (2) the supply of futures contracts is equal to the demand for futures contracts. An *SS* curve will be derived which equilibrates the market for stocks and an *FF* curve will be derived which equilibrates the market for futures contracts (see Figure 2). Market equilibrium exists when these curves intersect.

A. The Supply and Demand for Stocks

The demand for stocks has been given in equation (3). The quantity of stocks in existence is equal to the initial quantity of stocks, S_{-1} , plus the difference between current production and current consumption $X(p, a)$. The quantity $X(p, a)$ is the excess supply of current production, p is the spot price and a is a parameter. An increase in a means a rightward shift of the excess supply curve of current production. This curve is upward-sloping since a rise in the spot price increases the quantity supplied, and decreases the quantity demanded, of current output.

In equilibrium, equation (4) must be satisfied:

$$(4) \quad U(p^* - p - m) + H[(p^* - q^*) + b - m] = S_{-1} + X(p, a).$$

The total quantity of stocks demanded, $U + H$, must equal the total quantity of stocks available, $S_{-1} + X$. The two dependent variables are

p , the spot price and b , the spread between the futures price and the spot price. Once p and b are known, $q \equiv b + p$ is also known. The variable b can be negative; but p must be nonnegative.

Differentiate (4) with respect to p and solve for $\partial b/\partial p$. This is described in equation (5) below.³

$$(5) \quad \frac{\partial b}{\partial p} = \frac{X_p + U'}{H'} > 0;$$

$$X_p = \partial X/\partial p > 0,$$

$$U' = \partial U/\partial(p^* - p - m) > 0,$$

$$H' = \partial H/\partial[(p^* - q^*) + b - m] > 0.$$

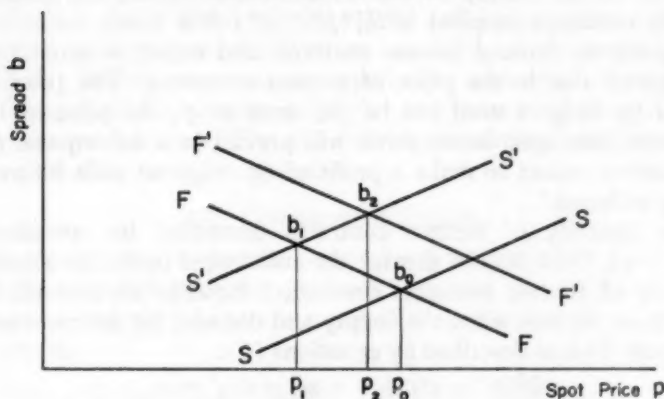


FIGURE 2

For equilibrium to prevail b and p must move in the same direction, and this is described by the SS curve in Figure 2 below. The SS curve is the pair of p and b that must prevail if the supply and demand for stocks (i.e., storage) are to be equal.⁴

The logic of a rising SS curve can be expressed in literary terms, to correspond with equation (5). Given price expectations, a higher spot price will increase the quantity of stocks in existence by increas-

³ The marginal net carrying cost has been treated as a constant. This is not necessary. Let (4') $m = m(S)$; $m' > 0$. That is, the marginal net carrying cost rises with the size of the stocks. $S = S_1 + X(p, a)$. When we solve for $\partial p/\partial p$, given equations (4) and (4'), we again obtain a rising SS curve. The slope of the SS curve, with a rising m , is steeper than the slope of the curve in Figure 2.

⁴ The excess supply of current production could be written as $X(b, a)$, $X_b < 0$ and $X_a > 0$. The rationale for this formulation is that: as the spot price rises relative to the futures price (i.e., b falls) producers speed up production and consumers tend to postpone consumption. The slope of the SS curve obtained thereby is: $\partial b/\partial p = U'/(H' - X_b)$, which is strictly positive. No essential change is introduced into the analysis of the text by altering the excess supply curve of current production in this manner.

ing production and decreasing consumption. What must happen to the spread b to increase the quantity of stocks demanded by those who hold stocks? The spread b must change in such a way as to increase the quantity of stocks that people want to hold. Since a rise in the spread will achieve this end, by increasing the expected utility of holding hedged stocks, b must rise with p to equilibrate the supply and demand for stocks. This establishes the rising SS curve.

B. The Supply and Demand for Futures Contracts

Whenever a unit of stock is hedged, there is a forward contract supplied. The demand for hedged stock (i.e., the supply of hedged storage) is equal to the supply of futures contracts. Hence, the quantity of futures contracts supplied is $H[(p^* - q^*) + b - m]$.

Speculators demand futures contracts and expect to profit from an anticipated rise in the price of futures contracts.⁵ The price q^* expected by hedgers need not be the same as q' , the price of futures contracts that speculators think will prevail in a subsequent period. Speculators expect to make a profit of $(q' - q)$ on each futures contract purchased.⁶

The quantity of futures contracts demanded by speculators is $G(q' - q)$, $G' > 0$. The greater the anticipated profit the greater the quantity of futures contracts demanded. Equilibrium prevails in the market for futures when the supply and demand for futures contracts are equal. This is described by equations (6):

$$(6) \quad H[(p^* - q^*) + b - m] = G(q' - q).$$

Since $q = b + p$

$$(6) \quad H[(p^* - q^*) + b - m] = G(q' - b - p).$$

An FF curve is drawn in Figure 2, based upon equation (6). It describes the relation between b and p that must exist if the supply and demand for futures are to be equal. Differentiate equation (6) with respect, to p , and solve for $\partial b / \partial p$. This yields equation (7), the slope of the FF curve:

$$(7) \quad \frac{\partial b}{\partial p} = \frac{-G'}{H' + G'} < 0.$$

⁵ For purposes of exposition, the term speculator is reserved for those who are solely in the futures market. I do not refer to an individual who is entirely unhedged in the spot market, on the basis of maximizing expected utility, as a speculator. The only justification for this usage is expositional convenience.

Speculators (as defined above) can be either buyers or sellers of futures contracts depending upon the value of $(q' - q)$. In a market where long hedging dominates short hedging $(q' - q)$ will be negative; and speculators will be short futures.

⁶ Individual speculators take q as a datum and adjust their positions on the basis of $(q' - q)$.

It follows that FF is negatively sloped.⁷

A literary explanation of the negatively sloped FF curve can be given. Suppose that the spot price p rises, but the spread b is unchanged (i.e., both p and q rise by the same amount). What will occur? The rise in the price of futures will decrease the quantity of futures contracts demanded by speculators, since $q' - q$ is reduced. On the other hand, the quantity of futures contracts supplied will be unchanged, since the expected profit from holding hedged stocks: $b + (p^* - q^*) - m$, is unchanged. The excess supply of futures contracts lowers the futures price q ; and hence b must decline. When the spot price rises, the supply and demand for futures will be in equilibrium if b is lowered. Hence the negatively sloped FF curve.

Equilibrium exists when (1) the supply and demand for stocks are equal—the economy is on the SS curve—and (2) when the supply and demand for futures contracts are equal—the economy is on the FF curve. This equilibrium exists at (p_0, b_0) in Figure 2. At this point the future price $q_0 = b_0 + p_0$. The simultaneous determination of spot and futures prices has been demonstrated.

III. Comparative Statics

With the aid of the graphic technique developed above,⁸ we show the effects upon the spot price (p) and the spread (b) of (1) a change in the excess supply of current production and (2) changes in price expectations.

A. A Change in the Excess Supply of Current Production

An increase in the excess supply curve of current production shifts the SS curve upward to the left to $S'S'$ and leaves the FF curve unchanged, as shown in Figure 2.⁹ In the new equilibrium, the spot price

⁷ If m is a rising function of the stocks held, then:

$$\begin{aligned} H[b + (p^* - q^*) - m] &= G(q' - b - p); \\ m &= M(S_{-1} + X), \quad M' > 0, \\ \frac{\partial b}{\partial p} &= \frac{-G' + H'M'X_p}{H' + G'}. \end{aligned}$$

The term $H' M' X_p$ is positive. The slope of the FF curve will be negative if $-G' + H' M' X_p$ is negative. Assume that this term is negative.

⁸ For simplicity, m is assumed to be constant. A variable m does not change the results if the assumption of the previous note is made.

⁹ The shift of the SS curve, upward and to the left, as a result of a rise in a is derived. Differentiate (4) with respect to a .

$$H' \frac{\partial b}{\partial a} - (U' + X_p) \frac{\partial p}{\partial a} = X_a.$$

Given p , $\frac{\partial b}{\partial a}$ is positive. Given b , $\frac{\partial p}{\partial a}$ is negative.

is lower ($p_1 < p_0$) and the spread is higher ($b_1 > b_0$).¹⁰

The upward shift in the SS curve to $S'S'$ can be explained in the following way: Given the spot price p and the expected prices p^* , q^* and q' , an excess supply of current production increases the total quantity of stocks available. This increase must all be held hedged, since the unhedged quantity demanded is given as $U(p^* - p - m)$. Hedged stockholding will only increase if b is raised. Hence, the SS curve shifts upward: i.e., given p , b must rise when a is increased.

The equilibrium process shown in Figure 2 can be described as follows: The increase in the available stocks tends to depress the spot price and encourages present consumption. By the same token, storage becomes more profitable. The quantity of unhedged stocks increases since $(p^* - p)$ is increased. Given the price of futures, hedged stock holding also becomes more profitable since $(q - p)$ rises. But the increase in the holdings of hedged stocks produces a greater supply of futures contracts. This tends to reduce the price of futures. In the final equilibrium, q falls by less than p , i.e., the spread b increases. The quantity of unhedged stocks increases because p has fallen relative to p^* ; and the quantity of hedged stocks increases because b rises relative to $(p^* - q^*)$.

This analysis implies that, whenever there is a variation in the excess supply of current production, (1) Δb and Δp will be negatively correlated, and (2) Δp will be negatively correlated with ΔS , the change in the quantity of stocks held in storage.

B. Changes in the Expected Spot Price

When the expected spot price p^* is increased, other things remaining unchanged, the SS curve will shift to the right and the FF curve will shift to the left. If the initial equilibrium was at (p_2, b_2) in Figure 2, the new equilibrium will be at (p_0, b_0) . The spot price will rise from p_2 to p_0 ; the spread will fall from b_2 to b_0 .

The SS curve shifts from $S'S'$ to SS because the rise in expected price makes both hedged and unhedged stockholding more profitable,

¹⁰ The changes in p and b , resulting from a change in a , are seen by differentiating (4) and (6) with respect to a , and solving for

$$\frac{\partial b}{\partial a} \quad \text{and} \quad \frac{\partial p}{\partial a}$$

$$H' \frac{\partial b}{\partial a} - (U' + X_p) \frac{\partial p}{\partial a} = X_a$$

$$(G' + H') \frac{\partial b}{\partial a} + G' \frac{\partial p}{\partial a} = 0.$$

$$\frac{\partial b}{\partial a} \text{ is positive and } \frac{\partial p}{\partial a} \text{ is negative.}$$

given b . The excess demand for stocks cannot be satisfied, at the given b , unless the spot price p rises. Hence, the curve shifts to SS .¹¹

The FF curve will shift from $F'F'$ to FF as a result of the increase in expected price. Given b , a rise in p^* makes hedged stockholding more profitable. This increases the supply of futures contracts. Speculators will only increase their demand for futures contracts if q , the futures price falls. Given $b = q - p$, p must fall. Hence, the FF curve shifts to the left.¹²

In the final equilibrium, b falls from b_2 to b_0 , and p rises from p_2 to p_0 , as shown in Figure 2.¹³ A rise in the spot price is required to satisfy the increased demand for stocks.

When there has been a change in the price p^* expected to prevail in the future, it follows from this analysis that: (1) Δb and Δp will be negatively correlated, (2) Δp and ΔS (the change in the quantity of stocks held in storage) will be positively correlated.

On the basis of observed price and quantity behavior, we can infer whether there has been a change in the excess supply of current production or in expectations concerning the price p^* .

C. An Expectation of Price Rises in Spot and Futures Markets

Suppose that p^* , q^* and q' rise by equal amounts. What will be the effects of this change in expectations upon the current spot price p and the spread b ?

On the basis of equation (4) the demand for unhedged stocks will rise, as $p^* - p - m$ is increased. The demand for hedged stocks will

¹¹ Differentiate equation (4) with respect to p^* , given p . Then,

$$\frac{\partial b}{\partial p^*} = \frac{-(U' + H')}{H'} < 0.$$

This means that the SS curve falls with a given p . Similarly,

$$\frac{\partial p}{\partial p^*}$$

rises for a given b .

¹² Differentiate equation (6) with respect to p^* , holding p constant.

$$\frac{\partial b}{\partial p^*} = \frac{-H'}{H' + G'} < 0.$$

This means that the FF curve shifts down for a given p , or shifts to the left for a given b .

¹³ Differentiate (4) and (6) with respect to p^* .

$$-(X_p + U') \frac{\partial p}{\partial p^*} + H' \frac{\partial b}{\partial p^*} = -(U' + H')$$

$$G' \frac{\partial p}{\partial p^*} + (H' + G') \frac{\partial b}{\partial p^*} = -H'.$$

$$\frac{\partial p}{\partial p^*} > 0 \quad \text{and} \quad \frac{\partial b}{\partial p^*} < 0.$$

be unchanged since $p^* - q^*$ has not increased, and m is assumed to be constant. The excess demand for stocks, given b , can only be satisfied if p rises and induces a greater excess supply of current production. Consequently the SS curve shifts to the right.

On the basis of equation (5) the supply of futures contracts does not increase, because the demand for hedged stocks is unchanged. However, the demand for futures contracts has increased as a result of the rise in q' . This excess demand for futures contracts can be eliminated, given b , by a rise in p . Consequently, the FF curve also shifts to the right.

It is clear that the spot price p must rise. That the spread, $q - p$, must also rise can be explained as follows: The excess demand for futures contracts tends to raise the spread and thereby induces an increase in the quantity of hedged storage.¹⁴

In the case where spot and futures prices are expected to rise: (1) Δp and Δb are positively correlated, (2) Δp and ΔS are positively correlated and (3) Δp and Δq are positively correlated.

D. Conclusions

In so far as the above model (summarized by equations 4 and 6) is a realistic one, it is possible to infer the nature of the forces which produce changes in spot and futures prices.

A positive correlation between Δb and Δp suggests that the market has expected spot and futures prices to move together.

A negative correlation between Δb and Δp , by itself, is not too revealing. If, in addition Δp and ΔS are negatively correlated then there has been a change in the excess supply of current production: for example, an unexpected dumping of Soviet commodities on the world market.

On the other hand if Δp and Δb are negatively correlated, but Δp and ΔS are positively correlated—then there has been a change in the expected spot price but no change in the expected futures price.

REFERENCES

1. M. J. BRENNAN, "The Supply of Storage," *Am. Econ. Rev.*, Mar. 1958, 48, 50-72.

¹⁴ These conclusions are derived as follows:

$$\text{Let } p^* = p_0^* + k, \quad q^* = q_0^* + k \quad \text{and} \quad q' = q_0' + k.$$

Equations (4) and (6) become:

$$U(p_0^* + k - p - m) + H[(p_0^* - q_0^*) + b - m] = S_1 + X(p, a)$$

$$H(p_0^* - q_0^*) + b - m = G(q_0' + k - p - b).$$

Solve for $\frac{\partial p}{\partial k}$ and $\frac{\partial b}{\partial k}$. They are both positive.

2. GERALD GOLD, *Modern Commodity Futures Trading*. New York 1959.
3. H. S. HOUTHAKKER, "The Scope and Limits of Futures Trading," *The Allocation of Economic Resources*, Moses Abramovitz et al. Stanford 1959, pp. 134-59.
4. L. G. TELSER, "Futures Trading and the Storage of Cotton and Wheat," *Jour. Pol. Econ.*, June 1958, 66, 233-55.
5. JAMES TOBIN, "Liquidity Preference as Behavior Toward Risk," *Rev. Econ. Stud.*, Feb. 1958, 67, 65-86.
6. HOLBROOK WORKING, "Futures Trading and Hedging," *Am. Econ. Rev.*, June 1953, 43, 314-43.

COMMUNICATIONS

Investment in Human Capital: Comment

The treatment of currently or potentially productive human beings as capital and/or wealth has a long history in economic literature.¹ But during the first half of the twentieth century, certainly, the overwhelming majority of economists, following Alfred Marshall [8, pp. 71-72], have shown a tendency to use the concept of capital as applicable only to that portion of the non-human, material, man-made stock of wealth which is utilized directly in further production.

In spite of "majority opinion" the application of the capital concept to man has not disappeared from economic literature² and the past few years especially have witnessed a revival of the idea in U.S. economic journals. In the forefront of scholarly efforts in this direction stands the work of Theodore W. Schultz [13]-[17].

I shall grant unequivocally that theoretical models, incontestable from an abstract or mathematical point of view, can be built on the basis of the application of the capital concept to man. Yet, I shall contend that it is generally inadvisable to treat man as human capital.

Schultz believes that the main reason for the opposition to the human capital concept is based on a somewhat irrational fear that to accept the concept would be morally wrong and degrading to free man [13, p. 572] [16, p. 2] [17, p. 110]. This, however, is not the reason for my opposition. It is my contention that, mainly for three reasons, economics has little to gain and much to lose by the universal application of the capital concept to man:

First, "investment in man" is essentially different from investment in non-human capital. The difference arises largely from the fact that, as a general rule, at least a part of any one direct expenditure for the improvement of man is not investment as the term is usually used, i.e., it is undertaken for reasons other than the expectation of a monetary return, it has no traceable effects on future output and it satisfies wants directly. To the extent to which any part of such an expenditure is investment in this sense it is rarely if ever "rational" investment based on a careful comparison of alternate investment opportunities, with the anticipated monetary return and the degree of safety as guiding rods. Furthermore, any such part is inseparable from other parts which, not being classified as investment, are then conveniently referred to as consumption expenditure.

Secondly, were it possible to separate consumption expenditure from investment in man it would still remain a virtual impossibility to allocate a *specific* return to a *specific* investment in man (though aggregate expenditures for the improvement of man's skill, abilities, and productive capacities certainly

¹ See for instance [11] [19, pp. 265-66] [5, p. 13] [4, p. 65].

² See [21, n., p. 255] for a short bibliography of articles in British, German, French, and Italian journals during the first three decades of the 20th century.

have a positive influence of indeterminable magnitude on man's efficiency as a productive agent and, hence, on his output).

Finally, if consumption expenditure could be separated from investment in man, and if it were possible to compute the part of man's income that results from a given investment-in-man expenditure, it would in most instances still be ill-advised—from the point of view of social and economic welfare—to utilize the information thus obtained as the exclusive or even the primary basis for policy formation, public or private.⁸

I shall attempt to illustrate how these three arguments are applicable to expenditures on education. I shall then indicate briefly that the same arguments are applicable to direct expenditures on man for purposes other than his education.

I. Education: Consumption Expenditure or Investment?

Few U.S. social scientists today will argue with the basic spirit of Marshall's statement that: "There is no greater extravagance more prejudicial to the growth of national wealth than that wasteful negligence which allows genius that happens to be born of lowly parentage to expend itself in lowly work" [8, p. 212]. But Marshall did not utilize this realization to treat expenditures for education as "investment in man," and neither should we.

Up to a certain age, public school attendance is compulsory and any private expenditures connected therewith (such as expenditures for notebooks, gym clothes, etc.) are taken out of the area of private decision-making (except for whatever influence the parent may have as a voter or vote-getter). Some parents decide to incur additional expenses, beyond those required by law, for their children's education. They may send their children to "better" private schools or to parochial schools, they may provide them with private dancing or piano lessons, they may employ the services of a French governess. But such expenditures, more often than not, are at least in part consumption expenditures as far as both the economic motivation of the investor and the economic effects on the individual and on society are concerned. Due to the inseparability of the consumption and the investment part of such expenditures (and for other reasons discussed below) the return on any incremental expenditure to either the individual or society is not computable.

When we turn from legally required minimum education to voluntary private expenditures for education at the high school and the college level it still seems quite impossible to explain human behavior in terms of capital investment (as we have been using the term). Many a parent who would not think of spending thousands of dollars to establish his son in business or who would at least require a partnership in such a business, does not hesitate to spend

⁸ Joan Robinson sees the main difference between investment in acquiring earning power and investment in income-yielding property in the fact that in a capitalist society the earning power is not a salable commodity in the sense in which the income-yielding property is—a point not stressed in this paper. From this, she reaches the conclusion that "the present capital value of future personal earning has a metaphorical, not an actual financial meaning." While this seems a valid comment, her view that "From the point of view of the economy as a whole, the similarity is more important than the difference," is one contested in this paper [12, pp. 11-12].

an equal amount on his son's education without expecting any monetary return for himself (and with higher anticipated life income for his son often at best one of several motivating factors). The young college student who finances his own education will probably enroll in many courses and read many books that would bear only a remote relation, if any, to future expected or realized income. Although some of these may be required for graduation and therefore may be of indirect economic value, it is in all probability still a fair evaluation of human motivation that "the prospects of achieving more subtle satisfactions from mastering a higher education are more compelling to many people than the prospects of greater financial success." [6, p. 308]. Any attempt to show that rational individuals tend to undertake expenditure on education up to the point where the marginal productivity of the human capital produced by the process of education equals the rate of interest—a point at which the marginal expenditure on education yields a return equal to the return on marginal expenditure for any other factor of production—would be a mockery of economic theory.

At best, we can go along with Schultz's contention that "... some individuals and families make decisions to invest in *some* kinds of education, either in themselves or in their children, with an eye to the earnings that they expect to see forthcoming from such expenditures on education."⁴ And Schultz has to admit that in the case of expenditures on human beings, those for consumption and those for the purpose of increasing income are quite interwoven, "which is why the task of identifying each component is so formidable and why the measurement of capital formation by expenditures is less useful for human investment than for investment in physical goods" [16, p. 8]. He therefore proposes yield (measured in increased earnings) as an alternate method for estimating human investment.

II. Education and Income

Studies showing a close correlation between schooling (measured in numbers of years of attendance and/or type of school attended) and success (measured in terms of social position and/or annual or life earnings) antedate the turn of the century.⁵ Some recent studies attempt to measure the financial return to "investment" in education. The value of a college education in the late 1950's, for instance, has been estimated anywhere from \$100,000 to almost \$180,000 [2, p. 180] [7, p. 28] [9, p. 981]. However, the present value of a lifetime income differential of nearly \$106,000 between a high school and a college graduate amounts to a mere \$3,305 when figured after taxes and when discounted at 8 per cent [7, p. 28]—not an unreasonable rate of discount if one considers the risk involved in "investing" in a college education.

To obtain valid figures for lifetime incomes (on the basis of present actuarial tables), to correlate such figures with years of schooling, to compute the cost of such schooling in terms of private expenditures, public expenditures, and opportunity costs (*without* any attempt to segregate "consumption" from

⁴ [13, pp. 572-73]. Emphasis mine.

⁵ See [3] for a discussion of many of these early studies and a bibliography of more than 125 books and journal articles on the subject published between 1898 and 1917.

"investment in education" expenditures), to compute the rate of discount which will equate the expenditures with lifetime income differentials, and, finally, to compare this rate with the rate of return on investment in nonhuman capital—all these do not present insurmountable difficulties. But to establish a cause-effect relationship, to prove, in other words, that the income differential is the result of the additional education is quite a different matter. To do so, one would have to assume that the more educated individual does not differ from the less educated in any characteristic (other than education) that could explain part or all of the income differential. Such an assumption would be highly unrealistic as it is evident that there is a close correlation between intelligence and years of schooling (especially at the higher levels). There are also good indications of at least some correlation between the financial standing of parents and the years of schooling of their children. Finally, there is the possibility, if not the strong probability, that other factors such as connections, residence (urban vs. rural, North vs. South, etc.), occupational and cultural level of parents, health, etc. have some influence on years of school attendance. And surely all these factors have a direct bearing on income, independent of years of preparation.

In the early 'forties, Elbridge Sibley studied the case records of 2,158 Pennsylvania students and discovered that, at the below-college level, intelligence had a greater influence on years of education than parental status. However, as the probability of spending at least one year in an institution of higher learning, "while the most intelligent boys have only a 4 to 1 advantage over the least intelligent, the sons of men in the highest occupational category enjoy an advantage of more than 10 to 1 over those from the lowest occupational level" [18, p. 330].⁶ In his study of the relationship between income (annual and lifetime) and education for the years 1939-1959, Herman P. Miller noted that at least part of the higher income of those with more education could probably be accounted for by differences in intelligence, home environment, family connections, and other factors [9, p. 964] [6, p. 312]. D. S. Bridgman points to evidence that "unearned" (property) income of college graduates is higher than that of noncollege-trained individuals and he expresses the view that factors such as ability and property income have been given insufficient recognition in the past as causal agents of higher income of the more educated [2].

In 1958, Jacob Mincer constructed a model to account for personal income distribution in terms of differential "investment" in education [10]. He started out with many admittedly oversimplified assumptions, one of which was the assumption of identical abilities. But when he relaxed this unrealistic assumption, the plausibility of a positive correlation between ability traits and amount of education (with the obvious effect on income distribution) became apparent [10, p. 286]. To this he added that "when incomes rather than earnings are considered, the positive association of property incomes with occupational level . . . magnifies income differences" (thus accentuating what-

⁶ Sibley's study was published in 1942. Since then (in the United States, at least) increased numbers of scholarships and public subsidization of education have certainly diminished the dependence of schooling upon parental status.

ever effects the training factor per se might have) [10, p. 302]. Therefore, he could not and did not claim that a quantitative estimate of the effect of training on personal income distribution could be derived using his model.

J. R. Walsh, in his early (1935) study of the applicability of the capital concept to man, explained that in order to isolate the effect of education he would have to eliminate all other influences (such as ability, age, occupation, health, etc.) but that he had attempted no such elimination as he considered it impossible [21, p. 272]. Indeed, it is so completely impossible to eliminate all other influences⁷ that one has to agree with Houthakker that "... we cannot even be sure that the apparent effect of education on income is not completely explicable in terms of intelligence and parents' income, so that the specific effect of education would be zero or even negative" [7, p. 28].

There is another factor that enhances the difficulty of determining the return on "investment in education." This factor I shall call "maintenance costs."

Certainly, whenever the financial return on any investment in nonhuman capital is computed, maintenance costs of the capital good are considered. But, to the best of my knowledge, such maintenance costs have been utterly neglected in the case of human capital by all economists who have advocated the application of the capital concept to man. These maintenance costs first arise during the investment period. The tuxedo, the evening dress, the more frequent haircuts may not be absolutely necessary for the increase in subsequent earning capacity but they are *de facto* expenses connected with higher education (and they might be indirectly necessary for the intended investment goals lest the anxiety and the loss of tranquility caused by their absence interfere with scholastic accomplishments). But maintenance costs by no means end with the completion of the investment period. A part of these continuous maintenance costs (such as the more expensive car, the more luxuriously dressed wife, and the more lavishly furnished home of the "organization man," or the more frequently washed shirt and the more frequently dry-cleaned suit of the white collar worker) are almost unavoidably connected with the retention of the position which yields the higher income to the more educated.

Another part of these maintenance costs, perhaps less compulsive but still widely prevalent, relates to increased qualitative (and to some extent also quantitative) consumption demands resulting from higher education, higher income, or both.⁸ To the extent to which increased consumption expenditure results from increased income per se (which it will whenever the marginal propensity to consume is more than zero) it is independent of the cause of the increase in income. To the extent, however, to which increased consumption ex-

⁷ Theoretically it would not be necessary to eliminate all other influences, as partial (or multiple) correlation methods could be employed to allow for the effects of some other variables. However, amount of education is at least partly a matter of personal choice. As long as this is true, no matter how many factors have been considered, one can never be certain that there are not some unanalyzed variables influencing this choice which in themselves are responsible for the income differential attributed to education.

⁸ Other causes of increased consumption, if any, are disregarded as irrelevant to the main argument.

penditure results from the educational development of greater cultural, aesthetic and discriminating tastes (which is not a separable part but rather a result of the aggregate education process), it reflects an increased expenditure directly and uniquely attributable to the specific type of investment (in education).⁹ In time, these education-created expenditures will probably tend to become essential for the former student's efficient performance as a producer and, thus, part of the maintenance costs of the education-created human capital.¹⁰

III. Public Policy in Relation to Expenditure on Education

At present, the investment-in-human-capital concept appears to be gaining in favor among "liberals" who apparently intend to utilize it as a rationalization of federal aid to education (and, secondarily, other governmental investment-in-man expenditures). Walter Heller, Chairman of the Council of Economic Advisers to the President, for instance, refers to the human mind as America's greatest resource and points to the "vast implications for public policy" embodied in the development of the investment-in-human-capital concept [20]. But nothing is more dangerous to the very position of the liberals, I fear, than to attempt to defend government expenditures for education as a type of collective business investment which will yield economic returns attractive to the investing society in terms of maximum increase in GNP over and above costs. To cite just one example of the untenable position to which such argumentation could lead: Schultz sees a direct correlation between the lower incomes of Negroes in the United States (as compared with whites) and their relatively lower productivity resulting from inadequate educational preparation [16, p. 3-4] [17, p. 109] and he considers an "investment" in their education as financially sound. But more specific studies clearly show that due to greater vocational opportunities, the income differential correlated with additional education is considerably higher for whites than for Negroes.¹¹ Were we to agree that the government should treat expenditures for education as investment, could not a good case be made for the decrease, if not the discontinuation, of governmental subsidization of nonwhite students and a consequently higher subsidization of the financially more remunerative white students?

By the same token, should society discourage advanced studies by women unless they can give some reasonable assurance that their "human capital" will be used even after they are married? Or should we—COULD WE???—compute the indirect, long-range value of such women to society in terms of

* That there is *some* education-created increase in consumption (and not just substitution of one kind of consumption for another) appears evident from observation.

⁹ Schultz does not count such education-created consumption expenditures as maintenance costs. On the contrary, while acknowledging their existence, he suggests that the part of the cost of education that induces them be classified as consumption expenditure. By so decreasing the cost base for investment in education Schultz arrives at a higher rate of return on the investment than he would otherwise [16, pp. 12-13].

¹¹ In 1949, for instance, the difference in income between nonwhite college graduates and nonwhite males with one to three years in college (for the 45-54 year age group) was about \$500 for the year while the corresponding differential for white males was about twice as great [6, p. 309].

increased future productivity of their children whom they would perhaps rear more efficiently? The education of many young men and women who choose to prepare themselves for professions which they expect will yield them comparatively low monetary but comparatively high psychic incomes (such as teaching) might be of great value to society. But if we were to take return on investment as the guiding rod, how would we proceed? A teacher's *immediate, direct* contribution to GNP (equal to his gross income) would not be a true reflection of his value to society, and his *indirect, long-run* effect (expressed in terms of his influence on the income of others) is not measurable. Marshall proclaimed that: "All that is spent during many years in opening the means of higher education to the masses would be well paid for if it called out one more Newton or Darwin, Shakespeare or Beethoven" [8, p. 216]. Was Marshall wrong? I do not think he was. Yet, how would one obtain empirical evidence that such investment would be "well paid for"? How would one go about computing a significant rate of return on such an investment?

Indeed the advocate of more governmental aid to education who attempts to defend his proposal exclusively on an "it's sound investment policy" basis stands on shaky ground, for he would logically have to advise expenditures on education up to the point where the marginal productivity of the human capital created equaled the marginal productivity of other nonhuman capital, as well as the rate of interest. And what would this advocate of more government aid to education do if he were confronted with a study such as Becker's which reaches the conclusion that "... it would appear that direct returns alone cannot justify a large increase in expenditures on college education relative to expenditures on business capital" [1, p. 349]? He could find support in arguments such as Schultz's that Becker failed to take into consideration that a part of the expenditure on education is always for education as a pure consumer's good, that Becker therefore underestimated the return on investment in education, and that it is reasonable to assume that there has been underinvestment in education [16, p. 15]. But, on the other hand, our advocate of more government aid to education might also have to cope with the argument that Becker, perhaps, overestimated the return on investment in education, as no allowance was made in Becker's study for such parts of total returns as may have been attributable to factors other than education (as discussed in Part II above) or offset by increased "maintenance costs." And once the advocate of increased government aid to education reaches the conclusion that it is impossible to compute a scientifically unassailable rate of return for such investment, he loses even his theoretical basis for *any* government "investment" in education, forcing him once more to utilize arguments other than "it's sound investment policy" to defend his proposals.

IV. Expenditures on Human Beings Other Than for Education

For essentially the same reasons as presented in Parts I and II above, it seems for most purposes impractical, inconvenient, and of relatively little use to attempt the explanation of direct expenditures on man, other than for his education, in terms of the investment in human capital concept. And for es-

essentially the same reasons as those presented in Part III above, it seems ill-advised to base governmental policy on such a concept.

Whether we deal with outlays on food, improved medical care, housing, recreational facilities, or other "investments in man," we once again are faced with the impossibility of separating consumption from investment in any of those areas and with the impossibility of computing scientifically valid marginal returns on any of these expenditures. And once again it might prove detrimental to the best interests of society (measured in terms other than aggregate economic returns on investment) to have governmental policy determined (or even substantially influenced) by an investor's point of view. Governmental programs, for instance, providing for medical care or financial assistance to individuals beyond the retirement age (individuals thus fully depreciated as human capital) would be difficult to defend from the point of view of profitable investment per se (except, perhaps, in terms of the greater tranquility and therefore productivity of those still serviceable as human capital); and slum clearance projects might be considered poor investments as compared with the improvement of golf courses that would aid in steadying the nerves of more productive human capital.

V. Conclusions

Whether productive human beings should be treated as capital and whether some direct expenditures intended for or resulting in an increase in their productive capacities should be treated as investment in human capital are not questions of principle. There is no "right" or "wrong" way, because what constitutes *capital* and what constitutes *investment* is a matter of definition. Should one decide to include under "investment in human capital" everything that tends to increase man's productivity, the overwhelming part of all expenditures to which we usually refer as consumption expenditures would have to be considered investments. A substantial part of all expenditures for food, shelter, and clothing, many expenditures for recreation, entertainment, and travel, and even some expenditures for mere conveniences and luxuries would certainly need to be reclassified as investments to the extent to which they contribute, directly or indirectly, to the enhancement of a person's productivity.

While it is undeniable that the sum total of countless sensible expenditures on man (including expenditures for his education, health, proper nourishment, etc.) will tend, on the average, to have a beneficial impact upon his productivity, present and future, each of these expenditures individually and all of them in the aggregate consist of inseparable and indistinguishable parts of consumption and investment expenditures. The spender's motivation is essentially different from that of the investor in nonhuman capital. The return on the investment cannot be computed satisfactorily as both the amount of pure "investment" and the return to be allocated thereto are conjectural. And in society's allocation of productive resources for the advancement of economic and noneconomic welfare, the question of the financial wisdom of any direct expenditure on man must be reduced to one of secondary importance. We have come to accept as axioms that health is preferable to illness, knowledge pref-

erable to ignorance, freedom (whatever the term may mean) preferable to slavery, peace preferable to war, etc. Governmental expenditures directed towards the realization of these preferences bear no necessary relation to their economic profitability as investments.

This paper's opposition to the application of the capital concept to man, then, is not based on any argument that such application is "wrong" but only that, more often than not, it would confuse more than elucidate, it would create more problems than it would solve, and—as a basis for public policy—it would be of questionable value.

HARRY G. SHAFFER*

REFERENCES

1. G. S. BECKER, "Underinvestment in College Education," *Am. Econ. Rev. Proc.*, May 1960, 50, 346-54.
2. D. S. BRIDGMAN, "Problems in Estimating the Monetary Value of College Education," *Rev. Econ. Stat.*, Aug. 1960 Suppl., 42, 180-84.
3. A. CASWELL ELLIS, "The Money Value of Education," Dept. of the Interior, *Bureau of Education, Bull.*, 1917, No. 22, Washington 1917.
4. IRVING FISHER, *The Nature of Capital and Income*. New York 1906.
5. ———, *The Theory of Interest*. New York 1930.
6. P. C. GLICK AND H. P. MILLER, "Educational Level and Potential Income," *Am. Soc. Rev.*, June 1956, 21, 307-12.
7. H. S. HOUTHAKKER, "Education and Income," *Rev. Econ. Stat.*, Feb. 1959, 41, 24-28.
8. ALFRED MARSHALL, *Principles of Economics*, 8th ed. London 1946.
9. H. P. MILLER, "Annual and Lifetime Income in Relation to Education: 1939-1959," *Am. Econ. Rev.*, Dec. 1960, 50, 962-86.
10. JACOB MINCER, "Investment in Human Capital and Personal Distribution of Income," *Jour. Pol. Econ.*, Aug. 1958, 66, 281-302.
11. SIR WILLIAM PETTY, "Political Arithmetic" (first published in 1676), *The Economic Writings of Sir William Petty* (Charles Henry Hull, ed.), Cambridge 1899, Vol. I, pp. 233-313.
12. JOAN ROBINSON, *The Accumulation of Capital*. Homewood, Ill. 1956.
13. T. W. SCHULTZ, "Capital Formation by Education," *Jour. Pol. Econ.*, Dec. 1960, 68, 571-83.
14. ———, "Education and Economic Growth," in *Social Forces Influencing American Education*, H. G. Richey, ed., Chicago 1961.
15. ———, "Human Capital: A Growing Asset," *Sat. Rev.*, Jan. 21, 1961, 37-39.
16. ———, "Investment in Human Capital," *Am. Econ. Rev.*, March 1961, 51, 1-17.
17. ———, "Investment in Man: An Economist's View," *Soc. Service Rev.*, June 1959, 33, 109-17.
18. ELBRIDGE SIBLEY, "Some Demographic Clues to Stratification," *Am. Soc. Rev.*, June 1942, 7, 322-30.

*The author is assistant professor of economics at the University of Kansas. He is indebted to Juliet Shaffer, Darwin Daicoff, and Charles Staley for valuable suggestions.

19. ADAM SMITH, *The Wealth of Nations*, Modern Lib. ed., New York 1937, 265-66.
20. *Time Magazine*, March 1961, p. 22.
21. J. R. WALSH, "Capital Concept Applied to Man," *Quart. Jour. Econ.*, Feb. 1935, 49, 255-85.

Investment in Human Capital: Reply

I am surprised and pleased that under the restraints of a presidential address to the American Economic Association, enough could be said to warrant so careful and valuable a comment. Harry G. Shaffer discusses some of the minor difficulties that arise in practice in distinguishing between consumption and investment expenditures in the formation of human capital and then examines in considerable detail, and in my judgment correctly, some major difficulties in identifying and measuring the earnings (return) that are associated with a particular investment in man. Shaffer does not object to the concepts of investment in man and human capital; on the contrary, he explicitly accepts the underlying theory. He is, also, careful to disassociate himself from those who believe that it is morally wrong to apply the concepts of investment and capital to people. However, if any new knowledge were attainable by the use of these concepts, despite the empirical difficulties, Shaffer appears to believe that such knowledge would be grossly misused—by implication, more so than other economic knowledge—in making policy decisions. This view of the relation between economic analysis and policy seems unreal and irrelevant.

Shaffer's first point is addressed to the question: When are educational expenditures consumption and when are they investment? This question deserves careful investigation because so much depends upon the correctness of the answer. To follow the conventional procedure of treating all such costs as serving only current consumption will not do. But to allocate all of these costs to investment in future earnings, is fully as extreme and unwarranted. Although the economic logic for allocating the costs of education is clear and compelling, no one has as yet developed a wholly satisfactory empirical procedure for identifying and measuring the particular resources that enter into each of these components. Faced with this difficulty, any allocation that one makes, based on such clues as seem relevant, must in all honesty be labeled "arbitrary." There is little intellectual comfort in the fact that a similar brand of arbitrariness characterizes other areas of analysis, for example, in the way expenditures for electricity and for automobiles used by farmers are divided and distributed between household and farm expenses, or the way a part of the costs of some private residences used for offices, libraries or studies are treated as business expenses.

In discussing the central question of allocating resources between consumption and investment, Shaffer emphasizes two facts, namely that most students attend public schools, and that up to a certain age school attendance is compulsory. But neither of these facts is relevant to a logical basis for distinguishing between consumption and investments. If education were altogether free, a person would presumably consume of it until he were satiated and "invest"

in it until it would no longer increase his future earnings. If a part of the education expenditures were borne on public account, the direct private costs of education would of course be less than the total costs of education, and to the extent that such education increased the future earnings of the student, his private rate of return to what he spent on education would be higher than the rate of return to total educational expenditures entering into this part of his education. Thus, private incentives to consume and to invest in education are affected by public educational expenditures, but the fact that there are such public expenditures has no bearing on the question whether education is consumption or investment. The fact that some schooling is compulsory is also irrelevant to the question at hand. To argue that it applies is analogous to saying that a city ordinance which requires private owners of houses to install plumbing and sewage disposal facilities is a factor in determining whether such facilities are a consumer or producer durable. Clearly, the compulsory city ordinance does not provide a logical basis for distinguishing between these two types of durables.

Although Shaffer is clear in seeing the positive effects of education upon the future earnings of students, he believes that the economic motivations of students and parents to invest in education is weak or even nonexistent. They are, in Shaffer's view, strongly motivated as consumers of education but only weakly or not motivated at all as investors in education. Such a dichotomy with respect to economic motivations is far from convincing. It is undoubtedly true, as Shaffer points out, that some education is wholly for consumption, and obviously in that case there would be no investment opportunity, hence no bases for an investment motivation. But are there no economic motivations in the case of students who attend our medical schools, schools for dentists, lawyers and engineers to invest in each of these particular skills with an eye to increases in future earnings? I am sure that the prospects of larger future earnings play a strong motivating role in these situations. Let me observe again, however, that private incentives either to consume education or to invest in it are affected by the amount and the nature of public expenditures for education. It is of course true that any attempt to explain total behavior with regard to the allocation of all public and private resources entering into education, takes one beyond the scope of the conventional private economic calculus of people. In studying the responses of private individuals to whatever investment opportunities education affords, it should be borne in mind: (1) that where the capital market does serve human investment it is subject to more imperfections than in financing physical capital; (2) that most investment in people, notably in the case of education, is in a long-period capacity, for it has a relatively long life and it is thus subject to the additional uncertainties which this implies; (3) that many individuals face serious uncertainty in assessing their innate talents when it comes to investing in themselves; and (4) that our laws discriminate against human investments [3]. These factors affect the observed responses, and their adverse effects may be confused with the real economic response, other things equal, to a given rate of return which is then thought to be weak or nonexistent.

Let me do no more than restate the effects of education upon consumption and earnings. The consumption component of education is either for current consumption, satisfying consumer well-being in the present, like food, or for future consumption, like houses. Education can also improve the capabilities of people and thus enhance their future earnings. The investment formed by education is, therefore, of two parts: a future consumption component and a future earnings component.

In "Education and Economic Growth" [4], in examining education for consumption, I emphasized the current consumption component. It is now clear to me that most education that satisfies consumer preferences is for future consumption and that this component has substantial durability and it is, therefore, to the extent that it serves consumption, mainly an *enduring* consumer component, even more so than other consumer durables. As an enduring consumer component, it is the source of future utilities (and thus this component, also, contributes to future real income) which in no way enters into *measured* national income.¹ This component accordingly is like investment in houses, automobiles, refrigerators and the like. Thus we have the following: (1) education for current consumption (which, it seems to me, is of minor importance); (2) education for long-period future consumption, making it an investment in an enduring consumer component, which is undoubtedly of considerable importance; and (3) education for skills and knowledge useful in economic endeavor and, thus, an investment in future earnings [5].

Shaffer's second point, which presents a number of the real difficulties that arise when one attempts to identify and measure the increase in earnings that are associated with education, is well founded. Differences in innate abilities, race, employment, mortality, and family connections all enter and must be faced. It should not distract from the merits of his presentation to observe that these several difficulties are very much in the forefront in the work of economists who to my knowledge are engaged in studying this set of problems. The forthcoming study by Becker [1] will be a landmark on this score as well as on other relevant theoretical and empirical issues. A major new study by Denison [2] is both bold and original in bringing aggregate analysis to bear on the *sources* of economic growth in the United States. He finds education to be one of the major sources of economic growth after adjusting for differences in innate abilities and associated characteristics that affect earnings independently of education. Shaffer introduces a concept which he calls "maintenance costs" which in terms of the studies available to him has been neglected. But Weisbrod [6] in his paper "The Valuation of Human Capital," builds on "the proposition that the value of a person to others is measured by any excess of his contribution to production over what he consumes from production—this difference being the amount by which everyone else benefits from his productivity." Weisbrod then proceeds to estimate the relevant consumption, or

¹ Immediately following my presidential address, "Investment in Human Capital," Abba Lerner pointed out to me in conversation the role of future utilities from education and that this part of education also represented an investment. His logical and precise mind helped to clarify my thinking on this point and I am much indebted to him.

if you please, "maintenance costs" thus conceived, and subtracts such costs from gross earnings to obtain net earnings to be capitalized.

I am reluctant to tread upon the boulders Shaffer has collected in his comments on policy. I suspect, however, from what he says about them that they are conglomerates of compressed sand and at best weak materials for his conclusions. To have started off by lecturing "liberals" on their rationalization of federal aid to education, is not conducive to a calm and reasoned discussion of the policy implications of expenditures for education. If the argument were that the knowledge now available about the increases in earnings from education is still too fragmentary to be of any use whatsoever in making policy decisions, it would deserve careful consideration. If the argument were that knowledge about the effects of education upon future earnings will be misused by people and therefore any efforts to acquire such knowledge should be very much discouraged, this conclusion from such an argument would be patently false.

The principal source of Shaffer's confusion in discussing policy arises from his belief that, if it were to become known that particular forms of education pay in terms of increases in future earnings, policy decisions which took this fact into account would necessarily no longer take into account any of the other important contributions of education. People, including those who make policy decisions, are simply not that monolithic in their evaluation of education. Shaffer's implied apprehension that society will proceed to deny advanced education to women merely because most of them do not enter the labor market is a pure illusion. If Shaffer only means that knowledge about economic returns accruing from investment in human capital, in terms of future earnings, *should not* be the exclusive basis for public policy decisions in making expenditures for education, we are in full agreement. My view on this issue can be stated very simply: It is altogether proper that people should prize highly the cultural contributions of education and they will continue to do exactly that; but it is very short-sighted of us not to see its economic contributions. Education has become a major source of economic growth [5] in winning the abundance that is to be had by developing a modern agriculture and industry. It simply would not be possible to have this abundance if our people were predominantly illiterate and unskilled. Education, therefore, in addition to having high cultural values, is presently also an investment in people to the extent that it improves their capabilities and thereby increases the future earnings of people.

Shaffer says that there are specific studies which "clearly show . . . the income differential correlated with additional education is considerably higher for whites than for Negroes," and suggests the inference that less rather than more should therefore be spent on education for Negroes, provided this were the sole criterion. The specific studies in this case are based on national averages, making no adjustments for the effects of city size, different rates of unemployment, regions, and the quality of education. Nor is any account taken of the differences in the cost of education, including income foregone by the students, which is fully half of the total cost of college education. Furthermore, should there still remain a differential, as is to be expected because of discrimination, the relevant figure is not this income differential but the absolute difference

between the Negro who has, let us say, a college education and one who had only a high school education. The increase in earnings represented by this absolute difference is the reward to which one would turn in estimating the return on this investment. Zeman's [7] study, it seems to me, strongly supports the inference that differences in education are the major explanatory variable for the very large white-nonwhite income differentials in the United States.

Despite my serious misgivings about Shaffer's attempt to relate economic analysis and policy, I am, as I said at the outset, grateful to him for his most valuable comment.

THEODORE W. SCHULTZ*

REFERENCES

1. G. S. BECKER, has a major study on Investment in Education virtually completed for the Nat. Bur. Econ. Research, New York.
2. E. F. DENISON, *The Sources of Economic Growth in the United States and The Alternatives Before Us*, a study soon to be published by the Committee for Economic Development.
3. T. W. SCHULTZ, "Investment in Human Capital," *Am. Econ. Rev.*, March 1961, 51, 14-15.
4. ———, "Education and Economic Growth," *Social Forces Influencing American Education*, N. B. Henry, ed., Chicago 1961.
5. ———, "Education as a Source of Economic Growth," Paper No. 61-5, August 14, 1961, Dept. of Econ., University of Chicago.
6. B. A. WEISBROD, "The Valuation of Human Capital," *Jour. Pol. Econ.*, Oct. 1961, 69, 425-36.
7. M. ZEMAN, *A Quantitative Analysis of White-Nonwhite Income Differentials in the United States*, unpublished doctoral dissertation, Univ. of Chicago, 1955.

* The author is professor of economics at the University of Chicago.

The Differential Effects of Tight Money: Comment

In "The Differential Effects of Tight Money,"¹ Bach and Huizenga analyze several widely-held notions concerning the discriminatory impact of stringent monetary policy. The hypothesis receiving most of their attention, and the one to which this comment is addressed, is "that tight money led banks [in the period 1955-57] to discriminate against small borrowers in lending to businesses" (p. 59). They conclude that "widespread criticisms of tight money as unfairly discriminating against small borrowers, both in availability of loans and interest costs, are not supported by the data" (p. 79).

The purposes of this comment are to (1) question certain interpretations which the authors give to their data, (2) raise a question concerning the validity of their test of discrimination, and (3) examine the major assumption that underlies their analysis. These points are raised, not because my waning

¹ This *Review*, March 1961, 51, 52-80.

concern about monetary-policy discrimination has been revived but, rather, because the authors were not successful in dispelling it altogether.

Bach and Huizenga point out, as an exception to their general conclusion, the behavior of banks in the \$500-\$1,000 million deposit class, where discrimination against small-business borrowers is clearly evident. My specific question involves the interpretation of Table 5 (p. 66) which provides the basic data for banks in the \$100-\$500 million class. The authors state that "this evidence appears . . . clearly to reject the hypothesis that tight money led banks to discriminate especially against small borrowers" (p. 66).

A great deal of emphasis should be placed upon the qualification "especially" in the above quotation. Comparing, first, the percentage increase in loans to the largest borrower class as a proportion of the percentage increase to each of the four smallest borrower classes at both loose and tight banks, we find that the smallest-borrower classes fared relatively better at the loose banks. This indicates discrimination against small borrowers. A similar comparison of the second-largest borrower class with the four smallest-borrower classes reveals discrimination against the smallest of the latter, with the remaining three receiving relatively favorable treatment. Finally, comparing the third-largest business borrower class with the three smallest, we observe discrimination against the two smaller of the latter, with the next larger being relatively favored.

Thus, the medium-sized banks reveal a mixed bag of discrimination. While the generalization which Bach and Huizenga make is correct, it tends to submerge the observation that borrowing firms with up to \$5 million total assets fared less well relative to the largest-borrower size at the tight banks.

A second, more fundamental question may be raised with respect to the nature of the test of discrimination utilized in the study. Briefly, the assumption was made that discrimination against small business could be demonstrated "if tight banks increased loans relatively more to large (compared to small) borrowers than did comparable loose banks" of the same size (p. 65). Thus, assuming demand for loans was equal at tight and loose banks of comparable size, observed discrimination by tight banks could be attributed to tight money, since loose banks were relatively unrestrained by growing monetary stringency in the period 1955-57.

The usefulness of this ingenious test is clouded by the adoption of a measure of tight and loose banks which is of doubtful reliability. Since banks in each size category were ranked according to degree of looseness and conclusions drawn upon the basis of lending behavior in loose, medium and tight banks, the classification process is crucial.

Briefly, banks were first divided into two halves according to their looseness as of October, 1955:

$$\frac{\text{free reserves} + \text{government bills and certificates}}{\text{deposits}}$$

A further bank-ranking was made according to increase in deposits between 1955 and 1957 in order to account for changes in looseness during the period

of monetary tightness. These two rankings were combined to identify tight banks by taking the 50 per cent of the tight half of the 1955 ranking that showed greatest increase in tightness 1955-57. The loose banks were selected by taking 50 per cent of the loosest half of the 1955 ranking that had the greatest increase in looseness over the period. The remaining banks were classified as "medium."

A substantial question arises as to whether the 1955 looseness ratio leads to a ranking which actually reflects the loan expansion potential of individual banks. My chief doubt is generated by the authors' selection of government bills and certificates as a measure of liquidity in the ratio numerator. Even if we accept their reason for not including government securities maturing in more than one year (p. 57n), the exclusion of government securities maturing within one year other than bills and certificates is cause for concern. Certainly these other notes and bonds maturing in less than a year are as liquid as bills and certificates of equal maturity.²

As of October 1955, the date for which banks were ranked initially into tight and loose categories, commercial bank-held government securities maturing within one year totaled \$8,654 millions, of which bills and certificates accounted for \$4,828 millions. Thus, approximately 44 per cent of marketable maturities within one year held by commercial banks were neither bills nor certificates.

On the assumption that these other securities are as liquid as bills and certificates, their inclusion in the ratio numerator might well have led to a rank-ordering of banks substantially different from that of the authors. A single bank which has its one-year maturity needs adequately met by "old" notes and bonds is unlikely to have bills and certificates. Other things equal, this bank would be ranked tighter than was actually the case, using the Bach-Huizenga looseness ratio.

Furthermore, is it not likely that the actual looseness of a bank is partially determined by its deposit-mix? According to the looseness formula, two banks of equal total deposits and highly different ratios of time to total deposits (and therefore presumably unequal liquid asset requirements) can be classified in the same group, if in fact their liquid asset position is equal. The high time-deposit bank, under these conditions, would be clearly looser than the high demand-deposit bank in an operating sense. Would further stratification of banks by time-deposit ratio provide a stronger test of the hypotheses?

The validity of the discrimination test applied by the authors to their data depends quite crucially on their assumption that "borrower loan demand was presumably substantially identical at loose, medium, and tight banks . . ." (p. 66). While this assumption cannot be verified, two reasons for doubting it can be offered. First, the fact that banks were classified as tight indicates the possibility that their loan demand was higher prior to 1955 than that of loose banks. One is tempted to assume that this difference continued during the period of tight money. Secondly, it seems reasonable to suppose that large

²The authors list this exclusion as a weakness of the looseness ratio but do not indicate the reasons for it (p. 57).

borrowers would shift from banks that could not supply all of their credit expansion demand during the period to those that could. Large corporate borrowers at the prime rate are not tied to a single bank relationship, while the alternatives of the small firm are distinctly limited.

DEANE CARSON*

*The author is associate professor of economics at Brown University.

The Differential Effects of Tight Money: Reply

Professor Carson expresses four doubts about our conclusion that "wide-spread criticisms of tight money as unfairly discriminating against small borrowers . . . are not supported by the data." We are pleased to comment briefly on his points.

1. First, with reference to banks of \$100-\$500 million deposits, he accepts our general conclusion, but suggests that the banks showed a "mixed bag of discrimination" and that, in fact, borrowers with less than \$5 million assets appear in some instances to have fared less well under tight money than did the largest borrowers. Carson is right that there is not a simple, monolithic relationship between size of borrower and tightness of banks shown in Table 5 of our article (p. 66). In that sense the picture shown is "mixed," as he says. So it often is in complex comparisons involving relative changes in multiple subgroups. We presented the complete data so each reader can make his own interpretation. But in such cases it is customary also to help by a summarizing device, and we did this in Figure 4 (p. 70) which presents the data of Table 5, with least-squares lines fitted. It is obvious that the slope of the solid (tight banks) line is far less than that of the dot-dash (loose banks) line, indicating that over-all the data contradict the hypothesis of special discrimination against smaller borrowers by tight banks. This, we believe, is the significant finding for the general argument that tight money discriminates strongly against small borrowers, for example as it is often advanced before Congressional committees.

2. Carson questions our major conclusion because our 1955 measure of "looseness" included only bills and certificates, rather than all government securities maturing in less than one year, in the basic ratio:

$$\frac{\text{free reserves} + \text{government bills and certificates}}{\text{deposits}}$$

He correctly points out that commercial-bank holdings of other government securities maturing in less than a year were nearly as large as were those of bills and certificates, and that such other government securities were also highly liquid. He suggests that the inclusion of these other governments in the numerator "might well have" led to a substantially different rank-ordering of banks and hence to a different ultimate outcome of the study.

The main reason we used only bills and certificates was that they were the only data available for individual banks in the call reports we used. Data on government securities maturing in less than one year come from special Treasury Department surveys and were not available in the individual bank detail needed for our study. But we did investigate the possibility raised by Carson, on a very small sample basis. This suggested that their inclusion would probably change the conclusion very little. More important, we know of no reason to suppose *a priori* that, with the other near-due governments included in the ratio, the rank-ordering would be changed in such a way as to show more discrimination against small borrowers, nor has Carson suggested any. It is important to note that merely a different rank-ordering would not necessarily change the tight-money findings; the new rank-ordering would need to produce a different pattern of lending behavior vis-à-vis large and small borrowers. Thus, Carson must be permitted his speculation that things "might be" different with the other data, but speculative "might be's" carry weight only with theoretical or empirical support. The evidence seems to us to stand as we presented it. If he can find a way of testing the hypothesis using his suggested data, we hope he will do so.

3. Carson questions whether our results might not have been different had we further subclassified banks by their demand-time deposit mix. Perhaps they would. With a third of a million punch cards and 25 reels of computer tapes of data, tests of further detailed hypotheses are far from costless in time and money. We saw no reason *a priori* why this further stratification would add significantly to the findings. The comments in the last four sentences of the preceding paragraph apply here too.

4. Carson questions our basic assumption that borrower demands were substantially identical for borrowers of given sizes and industries at tight and loose banks in the various bank-size classes, for two reasons. First, he says loan demands were possibly larger at tight banks in 1955, and may also have been so in 1957. Perhaps; but tightness in 1955 reflected heavy losses of reserves through deposit shifts (especially from the tight large city banks), as well as strong loan demand. Our general answer to doubts on the crucial assumption is given in the description of the design of the sample of banks used for the test and in footnote 14 on page 65. We checked the factors that seemed *a priori* likely to invalidate the assumption, and to the best of our ability couldn't find any substantial evidence undercutting the assumption.

Carson's second suggestion is related but different—that large borrowers with wider credit acceptability may have escaped the squeeze of tight money by shifting to loose banks. Since this seems *a priori* likely and the data are consistent with the possibility, we attempted in the study to estimate the quantitative importance of this effect, but with little success. Such large-borrower shifts were very unlikely to be of major importance in explaining the results shown, however, because there were few loose banks in the system large enough to service many large borrowers, who almost never borrow from small banks for obvious reasons. For example, there was not a single loose bank in either of

the two largest size classes, which include all banks with deposits over \$500 million (see pp. 68-69).

G. L. BACH AND C. J. HUIZENGA*

*The authors are, respectively, professor of economics at Carnegie Institute of Technology and acting assistant professor of business economics at the University of California, Los Angeles.

Measuring the Success of the Elementary Course: Comment

The controversy over measuring the success of the elementary course between Whitney [3] [4] and Rockwood and Harshbarger [2] left too much unsaid.

First, Whitney should be commended for pioneering something that very much needed doing. As the illustrious example of Keynes's *General Theory* testifies, any pioneering effort is likely to seem crude and imperfect compared to the ideal.

Second, objective tests can be expected to measure *directly* success in achieving only part, and not the most important part at that, of our objectives, namely, how well we have drilled our students in the fundamentals of the subject (e.g., elementary supply and demand concepts, the law of diminishing returns, etc.). They cannot test higher intellectual achievement; they cannot test how well the course contributes toward the larger aims of a liberal education, toward stimulating sophomores to think for themselves, toward freeing their minds from the shackles of their own limited experience.

Third, Whitney's results suggest (and I am confident that improved tests will confirm the initial findings) that we are not very good drillmasters. Foreign language teachers, who have two big advantages over us (usually a two-year requirement and a subject that changes hardly at all from decade to decade) are much better. We can accept Whitney's findings that we are not doing very well in this phase of our teaching and still agree with Rockwood and Harshbarger (as Whitney himself does) that the elementary economics course is very much worth while, pulling its weight in the curriculum of a liberal education.

Fourth, efforts to improve Whitney's objective tests are important because there will be a strong correlation in the future between our improvement as drillmasters and our improvement at achieving higher aims. The firmer the students' grasp of economics fundamentals,¹ the more we can open their minds on the great problems of economics;² and we need to know just how much we are improving with the fundamentals. Let us then, instead of carping at

¹ I anticipate that in a few years' time we shall be able to do much better at drilling by adopting the technique of programmed instruction used by Holland and Skinner in teaching psychology [1].

² Of course, we must not fall into the trap of neglecting the higher aims for the sake of a good showing on Whitney's tests.

the shortcomings of Whitney's tests, encourage (and help) him to improve them.

RENDIGS FELS*

REFERENCES

1. J. G. HOLLAND AND B. F. SKINNER, *The Analysis of Behavior*. New York 1961.
2. C. E. ROCKWOOD AND R. B. HARSHBARGER, "Measuring the Success of the Elementary Course: Comment," *Am. Econ. Rev.*, March 1961, 51, 144-46.
3. S. N. WHITNEY, "Measuring the Success of the Elementary Course," *Am. Econ. Rev.*, March 1960, 50, 159-69.
4. ———, "Measuring the Success of the Elementary Course: Reply," *Am. Econ. Rev.*, March 1961 51, 147-49.

*The author is professor of economics at Vanderbilt University.

BOOK REVIEWS

General Economics; Methodology

Franz Böhm: Reden und Schriften. Edited by ERNST-JOCHIM MESTMÄKER.
Karlsruhe: C. F. Müller, 1960. Pp. 340.

This *Festschrift* gives us an opportunity to know a distinguished member of a small but influential group of liberal German economists, men whose liberalism is indigenous, not imported. Professor Böhm has been lawyer, economist, university professor, minister of culture. He is now one of the editors of the economic yearbook, *Ordo*, a professor at the University of Frankfurt, and a member of the federal legislature. Böhm and the group of like-minded economists, known as the Freiburg School, have achieved a major success in the introduction and passage of the 1957 antitrust legislation in Germany; and they continue to be influential in current economic policies. Böhm led the delegation negotiating the treaty with Israel for payments to make some amends for the actions of the National Socialistic government, and he saw the bill for reparations through the legislature. He was granted an honorary degree by the New School for Social Research and awarded the Stephen S. Wise prize in 1956, but in general he remains unknown in this country.

The writings and speeches here collected deal with fundamental problems of economic policy for an unregimented economy, with anti-Semitism and the reparation for Nazi injustices, with the dictatorship of Hitler and resistance to it, and with the conflict between the communist and liberal world.

In economic policy, he is interested in the establishment of a framework within which individuals in an unregimented society can live, prosper, and seek the good life. One might well say of Böhm and his group what Lionel Robbins said of the English classical economists:

... they ... believe that without a firm framework of law and order, harmonious relations between individuals are unlikely to come into being; ... The invisible hand which guides men to promote ends which were no part of their intention, is not the hand of some god or some natural agency ... it is the hand of the lawgiver, the hand which withdraws from the sphere of the pursuit of self-interest those possibilities which do not harmonize with the public good. (*The Theory of Economic Policy*, p. 56.)

Böhm has said the same thing in slightly different terms (e.g., p. 95). This task of establishing a matrix for economic freedom is the primary concern of the Freiburg School. They are much more preoccupied than we are with the relation of particular policies to freedom.

In dealing with National Socialism and anti-Semitism, he is completely frank and extenuates nothing. In the ideological conflict between East and West, he attaches no sanctity to the market economy but defends it vigorously on practical grounds. On monopolies he is more absolute than many experts

in this country, defending the proposition that: if the technical processes of production seem to make the monopoly problem insoluble, it must nevertheless be solved to protect the public against dominance by economic might.

Böhm's liberalism is no postwar development. In the 1920's he was fighting against the rights of cartels under the then German law. In the 1930's he escaped concentration camp, but lost his position as professor because he was considered dangerous to the National Socialist state. One might at first glance classify Böhm as an unsophisticated, mid-nineteenth century liberal with a nonconformist conscience, concerned about economic freedom, equality, and fraternity. Like the great scientist, he can wonder at, and see mystery in, ordinary simple events; and with less restraint than Marshall, he considers the relation of economic conditions to ethical problems. All this may seem a bit naïve; but if Böhm is to be characterized as a nineteenth century liberal, it must be added that he is a liberal who has seen, and well remembers, two world wars, two catastrophic inflations, a devastating depression, and the disintegration of integrity under the Nazi terror—together with the economic resurgence of Western Germany at the present time. Having seen all this he cannot but take an historical perspective on economics, and he cannot divorce economics from political and social events. Like Keynes, he wants a well-functioning economy to make possible a worth-while society; and he fully appreciates the evils that a bad economic policy may engender. He prescribes, modestly, only for the realm of economic policy; but he is not indifferent to the rest. In all matters of policy, and in all economic and philosophical speculations, he rests his case not on metaphysics but on the empirical standard, "By their fruits ye shall know them."

RICHARD C. BERNHARD

*University of California
Riverside, California*

Challenge to the American Economy. By RENDIGS FELS. Boston: Allyn and Bacon, 1961. Pp. xvii, 708. \$7.95.

In the *American Economic Review* a few years ago¹ Rendigs Fels described "a new approach to teaching elementary economics." He discussed objectives, content and organization of the course, and the characteristics of the ideal text. It should not be surprising that *Challenge to the American Economy* is largely successful in meeting the prescriptions laid down by Fels for the ideal text. But it is not often that a reviewer (or potential user) has available from the author such a detailed argument for a particular content and organization. The book presents basic economic ideas, using policy problems as a vehicle. In the process, it acquaints the reader with some basic economic facts and institutions; it exposes the reader to a consideration of value judgments relevant to economic policy problems; it indicates traditional ways of thinking about the U. S. economy, together with criticisms that have led to modification; it prepares students for advanced courses by including a substantial amount of abstract economic theory.

¹ Rendigs Fels, "On Teaching Elementary Economics," *Am. Econ. Rev.*, Dec. 1955, 45, 919-32.

With the possible exception of a consideration of value judgments, the majority of introductory texts in print meet these purposes—but not in the manner prescribed. Most elementary texts that I have inspected mix abstract economic analysis with policy issues in successive chapters or sections of chapters. Abstract supply and demand analysis is presented, then the farm problem is discussed. Marginal cost, marginal revenue, and the equilibrium of the firm are treated abstractly, then monopoly and antitrust policy are considered. Whether the sequence is abstract theory, then policy problem, or, less commonly, policy problem followed by abstract theory to deal with it, the student's path is a bumpy one at best, a succession of insurmountable obstacles at worst. A few have met the difficulty by removing most of the principles from the principles of economics course, but this will not satisfy very many teachers and it is not Fels' solution.

Fels has a specific list of basic economic ideas that he wishes to teach.² He builds a narrative, centering on policy issues, that introduces these concepts and relationships in relatively simple terms. This is the nature of Part I, The Price Mechanism, and Part II, Mainly Macro, which together make up two-thirds of the book. Sometimes a numerical example supplements the definition of a concept, but algebra and the apparatus of diagrams do not intrude. They are left to Part III.

Other characteristics of Parts I and II are worthy of mention. Definitions of terms are carefully drawn. Section headings frequently are used to make the reasoning process explicit. Fels indicates the limits of analysis and where value judgments enter in. He presents his own position on policy issues at many points to alert the reader to possible bias on the author's part. Each chapter has discussion questions appended, most have suggestions for further reading, and several have useful problems.

Through two-thirds of *Challenge to the American Economy*, the reader has discovered the importance of economic theory in an interesting and relatively smooth-flowing presentation, and he has been exposed to quite a lot of theory as well. In fact, most of the concepts and relationships treated in Part III (entitled The Tools of Economic Analysis) have been defined and used in Parts I and II in conjunction with description and policy problems. What, then, is the function of Part III? It is to give the student a concentrated exposure to abstract economic reasoning, and practice in using it. The exposure is necessary if prospective economics majors are to get some idea of economics as an intellectual activity. This is one of the objectives of most introductory courses. Practice in using theory is necessary if at least some students are to develop what Fels calls a writing knowledge (as compared to a reading knowledge) of economics.

Part III is rigorous and abstract. It presents economic analysis in words, in simple algebra, and in diagrams. It is interlarded with problems. Fels objects to workbooks because they do too much of the work for the students. He argues that setting up a problem is crucial to understanding it, and I heartily agree with this position. Students are moved toward a writing knowledge of economics by the problems of Part III.

² *Ibid.*, p. 925, n. 11. His text contains a number of additions to this list.

There are several elements of novelty in *Challenge to the American Economy*, but the most important is the segregation of abstract economic theory, particularly the algebraic and diagrammatic approaches, at the end of the book, while introducing economic theory in a simpler, less rigorous form in connection with policy problems first. This is an intriguing and sensible approach that I should like to try; but I am disappointed that Fels did not go farther in this separation. An example or two should suffice. On pages 94 and 95 he deals with the differences between shifts of supply and demand schedules and movements along such schedules. Of course, such a distinction must be made, and might be made at this point in his book, but would it not be better to hold off using *these specific terms* until the student has been introduced to the diagrams that permit a visual impression of such shifts? Again, on page 140, Fels distinguishes between marginal revenue product of labor and the value of his marginal product, when introducing the marginal concept in a chapter entitled "Wages and the Last Straw." I shall admit that in one's first major departure from a traditional approach it is difficult to stick to the principle of the departure throughout. Fels recognizes this by ending the pertinent paragraph on page 140, with "It is best to ignore such complications. . . ." I agree, at least until Part III.

Challenge to the American Economy is an important contribution to the literature on teaching methods in economics. It makes possible an easy adoption of the persuasive arguments that Fels presents in his preface and in his communication in this *Review* referred to above. Beyond this, the book has greater flexibility in use than other introductory economics texts. Fels would find it difficult to follow his method with any other text. But those who do not accept Fels' arguments would have no difficulty adapting his text to their own particular approach. It is a superior elementary economics text no matter how you slice it.

KENYON A. KNOPP

Grinnell College

Fundamentals of Economics. By RUBY TURNER MORRIS. New York: The Ronald Press, 1961. Pp. xvi, 878. \$7.00. Accompanying workbook, \$2.75.

In a recently overheard discussion of the promotion of a college teacher through the academic hierarchy, one of the participants directed attention to the need for favorable judgment on the part of the college president, the man's department, the body of full professors, and the students. A colleague, expressing surprise at this statement, remarked that promotion was chiefly dependent upon the traditional categories of professional merits—publications, teaching, personality, and academic entrepreneurship. Only later did it dawn on these two analysts that, while each had touched upon essentials, the first, a political scientist, was attracted to a formulation that identified the locus of power and authority; the second, an economist, assumed the institutional power framework and set forth the criteria upon which rational judgment might be based.

This vignette illustrates general problems in social studies. Thus the analysis of human behavior requires the identification of a wide range of variables grouped into sets or categories, each category defined in some kind of institu-

tional terms. Special relationships among variables and among categories will command most of the economist's attention. Some variables, some categories, and some relationships will, at certain stages of analysis, be assumed as given—a fixed structure; others will then be operated upon analytically. Throughout, difficult problems of aggregation and synthesis are to be expected.

Ruby Turner Morris' text, *Fundamentals of Economics*, is a well-written and comprehensive discussion of virtually all of the variables, categories, and relationships significant to economics. Detail and generalizations are purposefully blended and profusely illustrated both in the writing and in many graphs and charts. Probably no other text has used illustrations to so good an effect. The author has succeeded admirably in conveying to students and instructors a vivid picture of the economy. Equally apparent is that rare gift of anticipating difficulties that students will encounter in analysis and of explaining such matters with special care.

The book proceeds from micro- to macroeconomic analysis, an approach to which other writers are now reverting. This bespeaks an increasing and commendable emphasis upon a more inductive method of study. Mrs. Morris' pragmatic, affirmative, and sometimes prescriptive attitude towards economics suggests yet another trend that will be well received. For example, writing about government finance in time of war when inflation is a major problem, she says: "On no account should bank credit be drawn upon as this will only make matters worse by augmenting the money supply" (p. 654).

Five chapters are devoted to illustrative problems in supply and demand. The topics treated are public utilities, monopolies, wholesale and retail trade, agriculture, and consumer economics. The discussion of wholesale and retail trade and the earlier treatment of monopolistic competition are top-flight. The complex issues of "fair trade" are beautifully handled right down to specific price changes at Gimbel's following the Schwegman Case wherein the Supreme Court held that nonsigners of fair-trade agreements were unaffected by their terms. On agricultural policy the author answers questions that are too often left untouched in other writing.

Unlike the partial perspectives symbolized by the views of my friends the political scientist and the economist, Morris' views of economics include about all of the significant angles of study. Indeed, it is only in a few matters of combining or aggregating economic relationships that some strengthening of the presentation might have been desirable. Thus the optimizing nature of the economic system as a whole is not dealt with at sufficient length; the conditions for equilibrium within and between product and factor markets are not fully developed along with the related matters of individual consumer and factor equilibrium. Perhaps, as has sometimes been done, such a treatment best includes the role of prices in a socialist state. As it is, socialism finds its more usual place in a next-to-last chapter where, along with fascism and communism, it is described pretty much as the organization of political and economic power.

There is ambiguity in the presentation of national income aggregates. At the outset of the discussion reference is made to savings (*S*) and investment (*I*) in the "Keynesian sense" (p. 604) and I take this to mean that savings equals

investment *by definition*. But later, $S = I$ is made an equilibrium condition (p. 607). The exposition would have been markedly clearer if emphasis had been given to planned or *ex ante* versus realized or *ex post* magnitudes since the equilibrium condition, $S = I$, is an equality between scheduled or planned magnitudes. In Chapter 27, "National Monetary and Fiscal Policies," one of the common expressions for national income (Y) appears, namely, $Y = C + I + G$ where G represents government expenditures and C , consumption expenditures. But a question arises as to whether G is the usual purchases of goods and services or a more narrowly defined category of government investment. The doubt is due to the author's use of the equation $S = I + G$ (p. 667). The more orthodox expression which includes taxes (T) is: $S + T = I + G$. It has the merit of requiring no definition of "government investment" and of conforming to the Commerce Department's accounting for government surplus or deficit as part of gross saving.

At two places in the text one notes that aggregation of relationships is presented in an oversimplified manner. In Chapter 14 on income distribution we read: "Aggregate the demands of all the producers of the country and you obtain the national demand schedule for labor" (p. 325). Coming on the heels of a discussion of the derived demand for labor under conditions of partial equilibrium, this statement might better have been qualified. In Chapter 15 on collective bargaining we find that if wages rise by an amount equal to the change in marginal revenue product, ". . . no unemployment, or for that matter no inflationary pressure, will be occasioned . . ." (p. 369). And this neglects income-spending effects that may be induced by the rise in wages.

In summary, I have found that *Fundamentals of Economics* is a good, solid text with outstanding strength in microeconomics. Among its many merits are the clarity and style that will make it an attractive book from which to teach and to learn.

JOHN E. MAHER

Michigan State University-Oakland

Price and Allocation Theory; Income and Employment Theory; History of Economic Thought

Inflation. By THOMAS WILSON. Cambridge: Harvard University Press, 1961. Pp. 280. \$5.50.

This book presents a qualitative analysis of the sources and process of inflation and discusses a wide variety of policy measures that have been used or might be used to stem or prevent inflation, ranging from general financial planning to socialized wholesaling, control of investment, foreign exchange controls, and the control of costs and prices. Though it contains some numbers and many references to experience, these are all strictly illustrative. The analysis is verbal, neither mathematics nor graphs playing any appreciable role. The book has no clear central thesis in either theory or policy and contains little that is new. It is a rather longer version of the kind of eclectic survey that an efficient and competent civil servant might prepare for his policy-making superior: reportorial, nonrigorous, largely undocumented, self-

consciously impersonal; concerned more with summarizing the current state of opinion and the range of views held than with presenting a thesis, yet at the same time peppered with personal normative judgments. As a result, the book is of interest rather more for what it reveals about the current state of professional opinion than for what it has to teach about inflation.

By relegating money to a minor supporting role in the analysis of deep depression, the Keynesian revolt fostered the fashion of treating inflation too as a nonmonetary phenomenon—a transfer, incidentally, of which Keynes himself was not guilty. The book mirrors this tendency though there are some indications that Wilson has no great enthusiasm for it. Nearly the first half of the book deals with the inflationary process in Keynesian nonmonetary terms, money entering only via the unanalyzed assumption that “additional funds . . . are readily available in the form of idle money or provided without limit by the banks at unchanged rates of interest” (p. 32). The key notion in this part is that inflation reflects inconsistency among the “real” plans of different groups in the economy.

The brute facts of postwar experience have produced a rise in the importance attributed to money. The book mirrors this counterrevolution as well. Not quite a third of the book is devoted to monetary factors, including the effectiveness of monetary restraint in limiting expenditures and of monetary policy in imposing restraint. Moreover, this part of the book has more life and vigor than the wooden pages dealing with planning inconsistencies.

The postwar counterrevolution has not simply been a return to a prior orthodoxy. Money has been attributed importance, but only, as is so often said, indirectly as a factor affecting interest rates and, through interest rates, investment, not as a direct factor affecting expenditures—a distinction that a fuller examination than is possible here demonstrates to be largely specious. The book is again a faithful mirror. The discussion of monetary factors is almost entirely in terms of “credit” effects, i.e., effects of monetary policy and measures on market rates of interest and terms of lending, and only incidentally in terms of “monetary” effects, i.e., effects on the stock of money and of the stock of money on economic activity.

The book has major defects in manner and matter that are present also in much of the literature it surveys and reflects. In manner, the major defect is lack of rigor. The book's manner is precisely that which Pareto and his fellow mathematical economists scorned as “literary economics.” Just as mathematics is a language, so words are symbols and there is nothing to prevent verbal analysis from being every bit as logical and rigorous as formal mathematical analysis. But it is far easier with words than with formal mathematics to be illogical just as it is perhaps easier with formal mathematics than with words to be irrelevant.

An example that both documents and illustrates the criticism of manner without trenching on controversial problems of matter is Wilson's treatment of “liquidity.” “We shall,” he writes, “define liquidity as the ease with which an asset can be exchanged for money, defined in turn as currency and deposits. Liquidity will therefore depend upon (i) the costs, if any, involved

in selling an asset of which stamp duties and legal charges are examples, (ii) the time required to find a buyer and the trouble involved in doing so, and (iii) the risk of having to sell at a heavy capital loss" (pp. 187-88). "Ease" is hardly a self-explanatory or precise concept. Far from being a firm foundation for a "therefore," its precise meaning is presumably to be interpreted by what follows. But this is no easy matter. Item (i) can be immediately translated into the ratio of the current selling price to the current buying price. Item (ii) is much less obvious. Clearly the time and trouble can be zero if the asset is given away. A plausible rendering is to translate it into a function relating the time interval before sale to the ratio of the current net selling price to the expected net selling price after that interval, "trouble" being accounted for as a cost to be subtracted in computing the net selling price. Item (iii) is still less obvious. Capital loss measured from what price? Purchase price? Current selling price? When is a loss "heavy"? Possible translations are functions relating the interval before sale to (a) the probability that the selling price will be less than some arbitrary fraction of the current selling price, or (b) the expected value of the part of the distribution of selling prices below the expected selling price expressed as a fraction of the expected selling price (or maybe of the current selling price), or (c) the standard deviation of selling prices as a ratio to the expected selling price (though this violates the restriction to "capital loss"). And even if (i), (ii), and (iii) were translated rigorously and uniquely, how are they to be combined into "ease"? Is "ease" a scalar, as a later reference to liquidity as "a matter of degree" implies, or a vector? This example, while perhaps more striking and obvious than most, is not atypical.¹

With respect to matter, the most serious defects in this book, as in much other post-Keynesian literature, are the analysis of inflation as if it were capable of being a largely nonmonetary phenomenon and the analysis of monetary effects as if they operated entirely through a narrow range of market interest rates.

As something of a summary of his first 113 pages, Wilson writes, "Inflation may be regarded as a consequence of inconsistent planning when the supply of funds available for active circulation is elastic" (p. 114). This statement seems to me strictly parallel to one in a hypothetical book on poliomyelitis reading, "A polio epidemic may be regarded as a consequence of nonisolated living when the supply of polio virus available for active circulation is elastic." Certainly the best documented and most uniform empirical generalization about inflation is that a substantial rise in the general level of prices (e.g., larger than the standard error of estimate of price indexes) over a substantial period (e.g., more than two years) is accompanied by a rise in the stock of money per unit of output (money defined by any of the alternative common definitions) and that a substantial rise in the stock of money per

¹ A trivial example of lack of rigor of a different kind is the assertion in a footnote on p. 162 that "In the U.S.A. a gold reserve of 40 per cent has to be retained against the note issue." This has not been true since the Act of June 12, 1945 lowered the required ratio to 25 per cent.

unit of output over fairly brief periods (e.g., less than five years) is accompanied by a rise in prices. I know of no exception to this generalization and there have been many confirming examples for all parts of the world, all kinds of economic systems, and stretching over millenia. And the generalization has held whether money expansion was connected with the lending and investing process and hence with market interest rates, as in recent years, or with gold or silver mining, sweating and clipping, or straightforward fiat issue. Is there any comparable body of evidence about a uniform connection between inconsistency of planning and inflation—except that inconsistent planning is always with us?

The relegation to a qualifying clause of one of the most soundly based generalizations in economics is compounded by the defect of manner, namely, by a lack of logical rigor in the analysis of inflation as a consequence of inconsistent planning. Overly optimistic plans for "real" investment and "real" consumption, autonomous demands for higher wages or prices, autonomous rises in costs via rises in import prices, and so on, which are the kind of items Wilson introduces under the rubric of inconsistent planning, might produce inflation by inducing an expansion in the stock of money or in velocity and thereby in prices. If so, and if they were the major factors accounting for the rise in the stock of money or in velocity, it would be entirely valid to regard them as the ultimate source of inflation. But it is not enough to assert that these items might induce an expansion in the stock of money or in velocity; they might also do the opposite. A rigorous analysis requires that the theorist specify a systematic link between these items and the stock of money or its velocity that can be expected to produce changes in the indicated direction. In all the literature on this subject with which I am familiar, only one link has been suggested that is logically tenable, namely, a deliberate monetary expansion by the monetary authorities in reaction to unemployment created by the items in question. Wilson makes no use of this particular link in his analysis of cost inflation, though he does take pains to make it clear that a deliberate policy of monetary restriction would cut inflation short.

Wilson is quite aware that money expenditures, if not explicitly the stock of money, must increase in order for inflation to take place. But he is content to put this to one side for more than a hundred pages in the assumption quoted above that "additional funds . . . are readily available in the form of idle money or provided without limits by the banks at unchanged rates of interest." The activation of "idle money" (never defined) is a possibility. Velocity can rise. But so also can it decline. Why should it do the one rather than the other? What is there about the changes that Wilson discusses that will induce or force holders of cash balances to reduce them relative to their expenditures? Wilson never even asks this question; he simply takes the answer for granted. To take a strictly analogous case from a problem in simple relative price theory: No doubt, income is readily available for most newspaper purchasers to pay a quarter instead of a nickel or a dime for a newspaper. Does this suffice to assure that the same number of newspapers will be sold at a quarter as at a nickel or a dime?

The failure to analyze the second part of the assumption is equally serious. If the stock of money is literally in perfectly elastic supply at a fixed (money?) rate of interest, then we are in Wicksellian unstable equilibrium. If the "natural" rate of interest happens to be higher than this fixed rate, the stock of money, prices, etc., will rise indefinitely, which is to say, until the "natural" rate happens to fall below the fixed rate; and conversely if the "natural" rate happens to be lower than the fixed rate. The key problem under these assumptions is where the *deus ex machina* of the fixed rate itself comes from, something about which Wilson is silent.

I cannot believe that Wilson means to assume what he says he does. But if he assumes something less extreme—say a positively sloping supply of money as a function of the nominal rate of interest—then a rigorous analysis requires that he analyze what there is about each of the changes he discusses that raises the stock of money demanded at a given interest rate and we are once again faced with the lacuna stressed in the second and third preceding paragraphs.

The three chapters Wilson devotes to monetary factors are far more satisfactory than the earlier chapters dealing with inconsistent planning and contain many acute and illuminating observations on specific problems of policy. Yet they are marred by concentration on what I have called credit effects to the almost complete exclusion of monetary effects. In the modern world, changes in the stock of money largely take place through the banking system, via the expansion or contraction of loans, the purchase and sale of marketable securities, and the like. It is extremely tempting to suppose that these channels through which the change in the stock of money occurs are also the channels through which the changed stock of money exerts its effect and hence that monetary changes are of significance only as they affect bank lending rates and other interest rates on a narrow range of marketable securities and as these in turn affect expenditures.

Such a view is far too narrow, as can be seen immediately by widening our horizon. Consider the European price revolution of the sixteenth and seventeenth centuries produced by the influx of precious metals from the New World; or the inflation after the gold discoveries of the 1840's; or after the gold discoveries of the 1880's and 1890's plus the development of improved methods of mining and refining; or the U. S. Revolutionary War inflation via Continental currency; or the Civil War inflations in both the North and the South. Only a few sentences in Wilson's three chapters are relevant to any of these episodes, yet as inflations they are members of the same species as modern episodes, differentiated by the channels whereby the increases in the stock of money occurred but not by the relation between changes in the stock of money and in prices. An understanding of the channels whereby changes in the stock of money may be produced is of course an essential part of the analysis of inflation. However, it is only the beginning of such an analysis, not the end.

MILTON FRIEDMAN

University of Chicago

Classical Keynesianism, Monetary Theory, and the Price Level. By SYDNEY WEINTRAUB. Philadelphia: Chilton Co., 1961. Pp. ix, 190. \$4.00.

As both an economist and part-time University administrator, I have been concerned for some time about the continuous and more recently rapid rise of the price level of consumer services, and more particularly of the price of higher education. I was aware of the continuous rise in salary levels of academicians and of the rise of other costs associated with teaching and research. I was also aware of the difficulty of defining the product (especially in tax-supported institutions) for purposes of the measurement of productivity and the construction of price indices. One would surely concur with the casual observation that the price of higher education, however defined, has risen in the postwar period. I have presumed that the reasons for this rise could be easily explained by examination of the aggregate demand, both current and anticipated, for these services in relation to the supply of factors which could provide the services. The same analysis I have presumed applied to many other sectors of the economy and hence to the aggregate level of prices.

Professor Weintraub in this collection of essays has provided us with different sets of social accounting identities or "truisms" which he feels illuminate more clearly the forces causing such price rises. Moreover, his "truism" supposedly focuses attention on the *one* variable which needs to be controlled, if, as a matter of public policy, we wish to achieve price stability.

Weintraub writes his WCM (wage-cost-mark-up) equation in its most significant form: $P = kw/A$. P , the price level is thus equal to w , the average wage level multiplied by k , the multiple by which proceeds exceed the wage bill and divided by A , the average product per worker. Since k is a constant, or nearly so, and A varies only slowly over time, P the price level "will largely respond to alterations in the money wage level."

Weintraub regards the causal nexus as going from wages to prices and prescribes some form of wage control as essential to achieving price stability without depression or intolerable unemployment. It is not perfectly clear who or what is responsible for the variability of money wage rates. Unions appear to be implicated; but management too may be irresponsible in their wage negotiations. In any event the proposed remedy is a public agency which will publicize wage changes which exceed productivity increases and thus lead to price increases.

In the case of the price of higher education it follows that either the American Association of University Professors (the academicians union) or university deans and presidents or both are behaving irresponsibly. Their efforts to raise faculty salaries and fringe benefits should be more adequately exposed. Controls may be hampered by devious schemes of deans to alter A , the average product per worker. Offers of reduced teaching loads and smaller class sizes can only lead to further inflation, and to no real benefit to society.

As has been pointed out by Lerner in his review of Weintraub's, *A General Theory of the Price Level*, in this journal (March 1961, pp. 121-43), the WCM theory and its policy prescriptions will not explain nor necessarily prevent an inflation of prices due to excess demand. Nor will such an analysis

explain the inflation of prices which occurs with the changing composition of final demand and the associated reallocation of resources. In this connection, Weintraub in this collection of essays does not in my opinion contribute significantly beyond his earlier work. If anything, he is somewhat more conciliatory toward his earlier critics in accepting occasionally the concept of a causal relationship between wages and prices going in the reverse direction. He still, however, would insist that an inflation cannot be sustained without an increase in w and therefore control of w is for him critical.

Monetary theorists, for whom Weintraub has little sympathy in his essays, could equally insist that an inflation cannot be sustained without an increase in the money supply or its close substitutes. Therefore, control of the money supply should be regarded as critical whether the causal nexus is the money supply or not. It may be that Weintraub's WCM theory would be more useful for describing certain periods of inflation than the equation of exchange or its derivatives. However, the theory by itself does not provide the necessary information for determining whether an inflation can be explained more adequately by one or the other theory. Of course, no "truisms" of this sort can accomplish this. Nor will the constancy of k and A make this WCM identity a better predictor of P than alternative sets of identities. If one knew the behavior of wages, with respect to output and employment and its composition, and of money and velocity with respect to employment one could predict prices with a variety of different accounting "truisms." For example, a *nonwage* cost mark-up theory could accomplish the same results.

In his first two essays Weintraub discusses what he refers to as classical Keynesianism and the inability of such a theory to say anything meaningful about inflation. Since this analysis is concerned with the determination of an equilibrium level of real output and contains an employment function only implicitly, it is not surprising that it is not well designed for the analysis of the price level. If Weintraub's criticism of the 45° Keynesianism is a pedagogical one of its efficacy as an expository device for explaining the price level, then I believe his argument is well taken. However, as a device for explaining the identity of income and expenditure to the novice and layman for whom this is still a mystery, the approach appears to me to be very useful.

Essays 3 through 9 contain Weintraub's attack on the equation of exchange, the presentation of the WCM identity and the latter's relationship to monetary and fiscal policy. There is some discussion of public policy as practiced by the monetary authorities and his own prescription for inflation control discussed above.

The tenth essay presents a rebuttal of various reviews of Weintraub's earlier work. Here, he finds some agreement between himself and reviewers such as Lerner, but where disagreement still exists, the argument is largely one of reiteration.

The final essay relates the WCM equation to the theory of growth and capital accumulation. While no new insights are provided in this formulation, I believe Weintraub's presentation significantly elucidates these basic ideas. This is perhaps the most useful essay in the book.

As a whole the book suffers from too much repetition. This may be the

inevitable result of the tendency of academicians to publish a single idea under many titles in various journals, which shows up when these titles are republished in a single volume. In spite of this, the collection contains many provocative ideas and analyses for graduate student seminars in economic theory.

PHILIP W. CARTWRIGHT

University of Washington, Seattle

Stabile Preise in wachsender Wirtschaft: Das Inflationsproblem. Erich Schneider zum 60. Geburtstag. Edited by GOTTFRIED BOMBACH. Tübingen: J.C.B. Mohr (Paul Siebeck), 1960. Pp. x, 274. DM 29.80.

This is a *Festschrift* for Erich Schneider, on the occasion of his 60th birthday. The editor, Gottfried Bombach, is to be commended for his choice of a central theme—"Stable Prices in a Growing Economy." The usual *Festschrift*, with contributions to several different fields of specialization, rarely commands the lasting interest of the profession, and some significant contributions remain hidden. In the present collection all essays but one deal with inflation, and students of inflation will probably return to the volume in later years.

The 17 contributions are by 18 contributors from 12 different countries; they are written in 3 different languages, 9 in English, 6 in German, 2 in French. Five of the essays deal chiefly with the monetary experience of particular countries; the other twelve are by and large theoretical analyses, even if they contain references to historical situations.

Léon Dupriez presents a lucid monetary history of Belgium since the end of the occupation in 1944. Beginning with the reduction by about one-half in the amount of currency in circulation, Belgian monetary policy has been based on the Ricardian principle that nothing is more important than keeping money scarce (p. 50).

Wilhelm Weber and Karl Socher describe Austria's battle against inflation since 1945; for the first six years the battle was not successful, but later, at least from 1954 to 1959, it was more successful than in most countries. A strategic instrument in the Austrian program has been a mixed commission on wages and prices, composed of cabinet officers and representatives of chambers, unions, and political parties, which may or may not "authorize" wage and price increases, but has no power to enforce its rulings (p. 70).

Jacques Rueff, in less than three pages, restates how, as a result of the termination of fiscal and monetary inflation, French producers were forced to pay more attention to increasing productivity. Exposed to competition and no longer able to sell at inflated prices, they must constantly strive to improve their techniques of production.

Börje Kragh, of Stockholm, writes about the inflation in Chile. What happened there was chiefly the old story of printing-press finance of budget deficits. In 1955, when the inflation was about to reach the galloping stage, restraints were applied and the rate of inflation was reduced. Kragh in his explanation of inflation makes much of "structural factors." He points to "autonomous changes in foreign trade" and to "certain structural rigidities,"

without offering proof that such factors were less important in Latin American countries that have done better in containing inflation. Structural factors, in my opinion, are largely reasons or excuses for lack of governmental backbone. If the explanations of those who point to "structural factors" in the economy as "causes" of inflation were correct, it would be impossible to explain how any inflation could ever be stopped. They are stopped by men with guts, not by changes in the "structure of the economy."

The guts—determination and ruthlessness—which Schacht applied in 1924 to the stabilization of the mark is severely criticized in Jørgen Pedersen's essay on the German monetary experience 1923 to 1930. Pedersen charges that the objective of the German policy, to stabilize the dollar value of the mark, was wrong: wage rates were allowed to increase about 95 per cent from 1924 to 1930, and this was "the fundamental flaw in the system" (p. 32). With stable wage rates, Germany would have avoided unemployment, would have eliminated its trade deficit, could have paid reparations. Probably so. But how should Schacht have succeeded in keeping wage rates from rising? Can Pedersen point to any democratically governed nation that has managed to stabilize money wage rates, either in the 1920's or in the 1950's? Strangely enough, Pedersen does not approve of the use of monetary restraints against wage inflation, for he chides Schacht for the "drastic credit restriction that forced firms to sell out their inventories" and for (in Pedersen's opinion) "abnormally high" interest rates of 7 to 8 per cent for long-term securities, "which must have been a severe handicap for residential building and construction in general" (p. 19). (Perhaps I should remind the reader that interest rates of 20 per cent and above for industrial credit were no exception in Central Europe after the stabilization of the currencies.) Pedersen concludes that wage controls would have "saved Germany from the collapse of its economic and political system and its fateful consequences" (p. 39).

Johan Akerman presents "an institutional approach to the problem of inflation." By this he means an approach which includes answers to the question *whose* actions are "mostly responsible for the deterioration of the currency." Akerman's answers are not in disagreement with what most economists have been saying: there are, before all, the governments, responding to expensive defense requirements and full-employment ideologies (p. 8); the "leaders of large industrial concerns," willing to grant higher wage rates and shifting the incidence by charging higher prices; and the labor unions, with "power . . . to enforce their demands" for ever-increasing wage rates. Like many of us, Akerman would prefer a system of stable money-wage rates and gradually falling product prices.

Ugo Papi believes that the accent of most earlier discussions has been too much upon demand inflation and not enough on factors causing increased production costs and reduced supply. He points to excessive taxation, unproductive public expenditures, tariffs and other import barriers, and various restrictive government interventions, and he concludes that "cost inflation can come about even in the presence of unexceptionable monetary and credit policy" (p. 166). He fails, however, to make a distinction between policies that make for high costs and those that make for ever-increasing costs.

Gottfried Bombach, in his interesting essay, evaluates the comparative roles of demand-pull and cost-push in the inflations since the war. He deals with the former as "disturbance of equilibrium" and with the latter as "absence of equilibrium." At one point he questions the soundness of a "conscious retardation of the growth rate as a policy of preventing inflation" (p. 199). To refer to monetary and fiscal restraints (designed to avoid excess demand for goods and services) as conscious retardations of growth is, I believe, objectionable on two counts: first, it takes for granted that inflation promotes growth and, secondly, it insinuates that the anti-inflationists believe this contention. In actual fact they probably believe that inflation does not aid growth, or perhaps even that it more likely retards than accelerates growth in the long run. In the latter case anti-inflationary monetary measures would have to be regarded as conscious growth policy. Bombach may have had in mind the short-run effects which strict avoidance of inflation may have upon the rate of increase in the national product. Growth rates, I submit, should never be measured for periods less than eight or ten years.

My preceding comment applies also to Alvin Hansen, who in his piece on "Inflation and Growth" charges that a "basic reason" for the "slowing down in the rate of growth [in the United States] is the [exaggerated] fear of inflation" (p. 181) and that "the dogma of rigid price stability can become, indeed already has become in the United States, an obstacle to growth and progress" (p. 185). Yet Hansen agrees that "the all important thing is to prevent excessive investment booms" (p. 182). His point, apparently, is that "bulges of investment" should be prevented by taxes on investment, not by higher interest rates. In the United States "a low rate of interest is needed to open up investment outlets" (p. 183). Only "a country that suffers from capital shortage should have a high rate of interest" to attract foreign capital and to stimulate domestic saving. But this is not Hansen's advice to underdeveloped countries, because there, he argues, voluntary saving could not be sufficient. For these countries he prescribes inflation as the alternative to stagnation. "The question is rather what *degree* of inflation is optimum for development" (p. 184).

Roy Harrod agrees "that inflationary finance is able to jack up the level of investment for a *short period*," but he goes on to state: "The mistake made by some has been in supposing that a policy that achieves its purpose for a short period can do so if adopted as continuing measure of policy" (p. 178). "There is danger that inflation, like protection for 'infant industries,' might outlast the period for which it was expedient. Inflation may be as difficult to eradicate as protection, and if continued is more hurtful to growth" (p. 179).

Gottfried Haberler's study on cost-push and demand-pull inflation is known to American readers, and needs no additional advertisement. A point to stress is the difference he finds between the inflationary effects of administered wages and of administered prices. Monopoly power of business firms may explain why prices are high, but not why they should continually rise (pp. 92, 97).

Another study of the comparative role of business firms and labor unions in the inflationary spiral is presented by Carl Föhl. He explains that cost re-

ductions resulting from increased productivity would regularly lead to price reductions if wage rates remained unchanged. However, firms fail to reduce prices because they want to be prepared for the wage increases that never fail to come, and unions justify their demands for higher wage rates by the firms' failure to reduce prices (p. 154). (Föhl's writing style may fascinate readers who like suspense: when, if ever, is this sentence going to end? and will it beat the record established on p. 147 with a sentence of 75 words and some of the words having as many as 20 letters?)

Jan Tinbergen applies his well-known technique of choosing "policy parameters" and "other data" to a search for the best model for the explanation of inflation. He finds that in such a model the quantity of money does less well as a variable than the "short-term interest rate," which in turn is inferior to a "supply equation for short credits" (p. 118). He believes it to be a "paradox" that "the more elastic the supply of money is, the more will non-monetary factors determine the circulation of money" (p. 119). This says in effect: an increase in the quantity of money is *not* an important variable in the model, because if the money supply is so elastic that it can increase at the slightest provocation, only the provocations are important as explanations of inflation.

Heinz Haller inquires into the effectiveness of fiscal-policy measures to prevent inflation. He discusses the political possibility and economic effects of (1) budget surpluses, used either for debt repayments to foreign creditors or the central bank, or for holding inactive cash balances; (2) government borrowing, through voluntary or compulsory loans, with the proceeds held idle; (3) preferential tax treatment for voluntary private saving in blocked accounts; and (4) countercyclical surtaxes on individuals and corporations to reduce consumption and investment expenditures. Like most economists analyzing fiscal policy, Haller makes his task more difficult by not specifying the monetary policy with which the fiscal policy is associated. The simplest analytical procedure, in my opinion, would be to assign full responsibility for determining the quantity of money to "monetary policy," and to assume that fiscal policy can (by definition) not affect the quantity of money.

Alan Peacock investigates the "built-in flexibility" of a given tax system, that is, its effectiveness in offsetting changes in income flows through automatic changes in tax revenues. He shows that tax systems that would operate to offset cyclical fluctuations around a *stationary* average income would fail to offset fluctuations in a *growing* economy. (I am avoiding Peacock's terminology: he refers to his two cases as the "macro-static" and the "macro-dynamic" one.) The inference Peacock draws from his analysis is that recourse to "authoritarian" changes in tax rates is necessary if fiscal policy is to be relied upon to perform the task of stabilization (p. 218).

One of the liveliest essays is by Jürg Niehans on the effects of interest policy upon prices. Niehans believes that the layman's naive idea that higher interest rates make for higher prices deserves more consideration than scholars have been willing to give it. He proceeds to an analysis of the results of a reduction in the market rate of interest through open-market policy with a consequent increase in real investment. He finds it possible, under some con-

ditions, that in the end prices would be lower instead of higher. He admits that these are not the "normal" conditions and that the outcome may be highly improbable. Niehans ought to have proceeded to specify under exactly what circumstances the exceptional price reductions could occur and just how probable it is for such circumstances to prevail in reality.

The one essay that is not related to inflation is by Ragnar Frisch with the title "The Infra Effect on Investments." This is how Frisch defines it: "The effect produced by changing the input coefficients in the receiving sector K—i.e., in the row K in an input-output table—we will call the *infra effect* in K" (p. 105). The way Frisch explains the infra effect is unfortunately supra my powers of comprehension which, I admit, are in some respects underdeveloped. Yet, I wonder how many highly sophisticated readers can grasp what Frisch says in this piece. Perhaps he contributed it as a challenge to Schneider, the master of lucid exposition, to try his hand at interpreting the mysteries to a wider audience. Yet, it may be just on account of this "infra effect" that the Schneider *Festschrift* will be more often cited than most other volumes of this type.

The reviewer joins the contributors to this volume in paying homage to one of the most influential economists of Europe.

Fritz Machlup

Princeton University

On Economic Growth—An Essay in Pure Theory. By D. M. BENSUSAN-BUTT.
New York: Oxford University Press, 1960. Pp. vi, 215. \$3.40.

"Perhaps," begins the second line of this little book, "a mathematical idiot with neither time nor wit to keep up with the spate of contemporary literature should not tackle dynamic economics: but, once glimpsed, the vision of economic history as a largely determinate process is so obsessive that one must get it out of one's system." The author is no idiot, mathematical or otherwise, and what came out of his obsession is a delightful essay, written with a blend of humor and wisdom, generous in scope and in the number and variety of problems touched upon, and yet so spare in the use of tools (not even calculus) and variables, and so simple in its presentation that it may appeal both to the mythical "intelligent layman" and to the teacher of economic history and development as an analytical introduction to his courses.

The story begins with a handicraft economy, without capital (or almost without), whose simple structure is guaranteed by nineteen assumptions (pp. 8-9). Of these, the most important are constant population, land, input coefficients, and state of technology; perfect competition and foresight; full mobility of labor and machinery (when the latter appears); and the immortality of machinery. The productivity of labor in all industries being identical, the annual wage equals productivity per man-year, which serves as the *numéraire*. There are neither profits nor rents, and no investment. The knowledge necessary for mechanization, that is for using a standard machine for each industry, does exist however, and the economy is jolted out of its stationary state by some exogenous accident, such as an unusually good harvest. The resulting savings, if any, are invested in the mechanization of the most suitable industry (yielding the highest rate of profit). Thus profits appear and

are, fully or partially, reinvested until this industry is completely mechanized. The prices of its products now fall because of lower costs, bringing down with them the rate of profit and so allowing the mechanization of the next most suitable industry. In the meantime, real incomes rise, and the interaction of income and price elasticities with the falling rate of profit opens up new investment outlets. The process goes on until all industries capable of mechanization are fully mechanized, or until the falling rate of profit, possibly combined with the increasing wealth of the capitalists, eliminates further saving. But in any case, the engineering industry (producing machinery) is not capable of mechanization. Machinery is produced with labor only.

This process of the initial departure from, and the eventual return to, the stationary state (which can take decades or centuries) is described with skill and insight. No admirer of the concept of stationary state, I had to admit, first grudgingly but with increasing admiration, that quite a few of the author's observations are applicable, not to the history of Europe and North America, but to many underdeveloped countries. At some stage of their history they must have had both capital accumulation and a modicum of technical progress. Yet all this evidently came to a halt, at least until recent times. Perhaps the marginal productivity of capital *with their old technique* had become very low indeed, while, as the author observes, the phenomenon of underemployment can be explained by the preference for leisure over the minute increment in income that an extra unit of effort could yield.

In the subsequent chapters many of the initial restrictive assumptions are removed or modified. Several techniques now become available for each industry. On the whole, the model shows remarkable stamina in its encounter with reality, and all goes reasonably well until Chapter 5 where (1) machinery loses its immortality, and (2) the engineering industry becomes capable of mechanization. As a result, the concept of the capital stock acquires its painfully familiar ambiguity, dragging down with it those of profit, income and input-output relationships. The mere appearance of depreciation is no great obstacle, and it yields, I think, to the author's "blunt instrument of common sense" (p. 75), though for unforeseen obsolescence common sense is a bit too blunt. But greater complications arise when machinery is produced with the help of other machinery and with changing technique. This problem requires some form of sequential analysis (difference equations, for instance) which the author refuses to use. So having battled it with courage and perseverance, and having duly impressed on the reader its inherent nastiness, he quietly puts it away for the rest of the book.

In the light of his objectives, he is not to blame. Yet I cannot help thinking that the use of capital and the presence of technical progress in the production of capital goods are among the most important aspects of economic development. They contain a partial explanation of such interesting phenomena as the slight, if any, secular fall in the rate of profit, the character of trade between developed and undeveloped countries, the rationale of Soviet economic policy, and many others, not to mention their significance to capital theory as such. It is a pity that the problem cannot be handled with simple tools.

The second important modification of the original assumptions consists in

the introduction of population growth with limited land. Ricardian economics (which we all study before, but seldom after, our general examinations) now comes to life, and it is striking how the limitation of land can change the results previously obtained ("Second Model" in Chapter 11). To mention only the most significant changes, the emergence of rent can provide an endogenous development force (as distinguished from an exogenous shock, like a bumper harvest, used previously) by creating a surplus a part of which may be saved and invested. But later in the game, the rising rents can depress both wages and profits (in true Ricardian tradition), while the ever-rising value of land allows landlords to dissave by selling part of it to savers without suffering any loss in wealth. Thus savings are dissipated, and even a potentially respectable propensity to save of the rest of the population may yield little or no investment (all this depending of course on the relative magnitudes of the variables involved). Technical progress in agriculture and in the production of agricultural machinery and other inputs has long since removed this danger from the face of advanced economies; but what about our less developed brethren? Perhaps heavy taxation of rent (or more correctly, of "pure" rent, if it can be identified), if not an outright nationalization of land, is not inappropriate at the beginning of economic development (a cheer here for Henry George!), though the whole question loses its importance in the more advanced stages.

The last six chapters (12-17) contain notes on models, on technical progress and cultural change, on uncertainty, on money, on the state, and finally on welfare, and show once more the author's rare ability to build beautiful structures from simple blocks. But may I be forgiven for taking issue with his statement: "Name a society whose economic advance delights its statisticians and you name one in which the good qualities of its earlier life are decaying and in which no new civilization has emerged" (p. 213). Just how good these "good qualities" were may stand some examination; perhaps their "goodness" is directly proportional to the square of their distance from the observer. And what about societies whose economic advance is the despair of their statisticians?

EVSEY D. DOMAR

Massachusetts Institute of Technology

A Study in the Theory of Investment. By TRYGVE HAAVELMO. Chicago: University of Chicago Press, 1960. Pp. vii, 221. \$5.00.

We know very little about what determines the level of investment spending. Existing theories of capital provide much metaphysics but few hypotheses that can be tested by econometric methods. Professor Haavelmo's study clearly demonstrates the emptiness of contemporary investment theories, whether they draw upon the time preference notion or the Keynesian investment schedule concept. If this phase of Haavelmo's effort—however negative it may be—does anything to expose and explode prevailing orthodoxy, it will have made a badly needed contribution.

The positive contribution of the study is not clear and can be only revealed by whatever success econometricians have in testing the mathematical models.

The work consists of three major parts. First, Haavelmo attempts to conceptualize capital as a "factor of production." Next, he examines the problems of capital accumulation in a centrally-controlled economy. Finally, he treats the behavior of a "market economy."

The reason for viewing capital as a factor of production—despite the forceful arguments of such diverse capital theorists as Hayek, Frank Knight, and Joan Robinson that it is not—rests on the appealing view that the services of capital agencies are inputs in the production-function sense. Since the production function defines technological constraints that influence producers' behavior, a theory of investment demand should commence from behavior propositions about those who make production decisions. (It might also be added—as Mrs. Robinson has shown—that the production function concept breaks down because of the difficulty of handling the capital problem.) Fully aware of the difficulties, Haavelmo proceeds to "disaggregate" capital and essentially talk of physical agencies which do in fact have a "productivity." However, we run into a durability problem. Decision makers, through both the initial construction of a capital agent and the resources they may divert to current maintenance, can affect the amount of productive power invested in it. And this is what the problem of investment theory is all about. Yet from the viewpoint of the decision-maker who faces the constraint of the production function, the services of the \$40,000 bulldozer may be a perfect substitute for the services of the \$80,000 one. The only way to cope with this problem is to incorporate indexes of durability (which Haavelmo admits are not easy to come by) in models that employ production functions embracing one or more subgroups of homogeneous capital "factors."

The mathematical models in the sections that treat investment behavior in planned and "market" economies illustrate the serious conceptual and measurement problems that would arise in attempts to test empirically models which employ the factor-of-production concept of capital. Haavelmo explicitly points out many of these difficulties. His effort should put over-zealous econometricians on guard.

With regard to behavioral insights, Haavelmo makes two worth-while but negative points. First, the idea of an optimal rate of growth—which in some theoretical systems implies an optimal "social" rate of time preference—falls to the ground. In a centrally controlled economy planners must make a policy decision regarding the level of output at some future date. Such a decision requires making interpersonal comparisons, and preforce must be a *political* one. The decision is one of present consumption versus future productive capacity, to be used for whatever purpose policy makers choose. (In some settings, future capacity might be used to launch 100 megaton warheads or to support gigantic foreign aid programs—consumption is not the sole end of economic activity.) There is no such thing as an optimal rate of growth. There is only an optimal way of attaining a given output objective.

Second, that which is "demanded" when we view capital as a factor of production is instrumental services. The flow of investment spending represents a demand for agencies that constitute a small increment to the total stock of agencies that render productive services. From a recognition of these points,

Haavelmo shows that the demand for investment cannot be derived from the "demand for capital" and that "demand for a finite addition to the stock of capital can lead to *any rate* of investment, from almost zero to infinity, depending on the additional hypothesis we introduce regarding the speed of reaction of capital users" (p. 216, italics in the original).

What, then, are the determinants of the level of investment spending? We simply do not know. In an enterprise system, individuals and groups do demand new physical assets, in the same sense that they demand ice cream, beer, and ballet performances. What is crucial for the behavior of the economy is *how much* they spend on new assets. Questions about how much people spend on consumer items are questions about demand elasticity, a subject about which we can say nothing a priori and which is a matter of "taste." We can homogenize diverse capital agencies and say that what investors buy are future dollars. A high rate of return, or interest rate, indicates that the price of future dollars is low, and vice versa. People will buy more future dollars at a low price than at a high price. At this point we can recognize—contrary to Haavelmo's view—that the theory of investment is just as "advanced" as the theory of consumer choice. But whether people spend more or less on future dollars when their price rises or falls is a question of demand elasticity. It is a question of "taste." The classical time-preference theory of investment spending, or the contemporary Keynesian theory, are at best assertions about people's tastes. Economists know better than to make such assertions about consumer behavior. The sooner we relegate similar assertions about investor behavior to the pile of theoretical deadwood, the sooner we may begin fruitful research about decisions to construct, acquire, and accumulate capital agencies.

J. A. STOCKFISCH

University of California, Los Angeles

Growth and Stability of the Postwar Economy. By BERT G. HICKMAN. Washington, D.C.: The Brookings Institution, 1960. Pp. xviii, 426. \$6.00.

The U.S. economy escaped an early postwar depression, and the downswings in 1948-49 and 1953-54 were to a large extent ascribed to extraordinary autonomous forces. Political and economic developments throughout the world in the first postwar decade directed the attention of economists to problems of economic growth. The 1957-58 recession was more "normal" and more international, and this and the next recession brought business cycles back to focus. In spite of its title Hickman's book concentrates on the latter topic. The relation to growth of changes in such factors as technology, the structure of industry, or the degree and pattern of market imperfection is discussed only very briefly, mainly as part of the "profile of the postwar economy." Part I of the book deals with the concept and significance of economic stability and compares American cycles in the postwar and prewar period. Part II describes in detail the U.S. cycles between 1946 and 1958. Part III discusses the role of key factors in the postwar cycles, viz., federal spending, consumption, investment, residential construction, monetary policy and price movements.

Hickman emphasizes the role played by changes in federal expenditure and

business inventories, and he draws attention repeatedly to autonomous variations of consumer demand. He stresses, and accounts for, the movement of residential construction "against the cyclical tide during many of the postwar years," and he notes the stabilizing influence of induced changes in corporate income tax receipts. However, he cautions against uncritical acceptance of the view that structural changes of the economy have permanently altered the character of U.S. cycles. Consideration of the international implications of U.S. cycles, and of the changes from cycle to cycle (particularly between interwar and postwar cycles), would have interested American and foreign readers. Moreover, from the methodological point of view some intercountry comparison of cyclical experience and countercyclical policies might have proved eminently helpful. Hickman's study is confined almost exclusively to a comparison of U.S. cycles.

In discussing changes in the personal and national saving-income ratios Hickman has not looked into the influence of the rate of change in income, and he refers to *the* marginal propensity to consume (p. 110) and *the* average propensity to save (p. 327). Different rates of change in income are accompanied by different responses of the income-earner. The higher the *rate* of growth in personal disposable income, the greater tends to be, at a given income, the saving-income ratio. Hence, the greater the rate of growth of total income and the more the increments are concentrated in few hands (thus involving high rates of growth of individual incomes), the greater tends to be the over-all saving-income ratio. The saving experience of several countries, among them of Japan in the last decade, reflects this relationship. Several variations in the U.S. average or marginal personal saving-income ratio noted by Hickman (e.g. pp. 54, 69, 128, 134, 264, 266, 222-23, 226) might, in part, reflect the same relationship. On similar grounds, the effect on the over-all saving-income ratio of short-term variations in income distribution (e.g., pp. 149-50) depends considerably on the distribution of the income changes: generally, if few incomes decline heavily while many increase slightly, the over-all saving-income ratio is likely to fall. The significance of the rate of change in income, and in other variables, has been neglected also in another context, namely, in the unqualified statement that "growth . . . is a basic criterion of satisfactory economic performance" (p. 11).

Since Hickman's study ends in 1958, he could reasonably ignore questions of structural unemployment or of an alleged chronic weakness of the U.S. economy. Economists have been concerned about certain features of the 1954-58 cycle, about the short duration and incompleteness of the 1958-60 expansion, about the fact that since 1956 full employment has been reached only fleetingly, and about the lower rate of growth in the United States than in several other important countries. These observations have raised further questions: about the manner in which public policies relating to cycles are affecting the rate and pattern of growth of the U.S. economy. The nature and relative success of fiscal and monetary policies can be perceived only against a clear background of the goals pursued. Even if the relation of public policies to growth was not a burning issue in most of the period studied by Hickman, full employment and price stability were not clear-cut alternatives. Hickman

might have examined more fully the variations in emphasis placed by the Federal Reserve System on these two goals, the reasons accounting for these variations, and the criteria by which the Federal Reserve or other authorities can follow chosen, or are likely to choose, the desirable combination of rates and patterns of unemployment and instability of prices—and of rates and patterns of growth. These are matters of increasing concern among economists, and, in this case too, intercountry comparisons might be more helpful than comparisons with relatively remote U.S. cycles.

Hickman has patiently marshaled a wide range of facts. More important, he has presented them skillfully: through the detailed description the reader can follow easily the main line of the argument and observe the important features. Economists concerned with cycles or current economic problems will enjoy Hickman's perceptive and stimulating analysis. Moreover, his able blend of theory and factual analysis provides valuable reading, amply documented, for courses in business cycles or income and employment.

S. G. TRIANTIS

University of Toronto

Ansatzpunkte der Wohlstandsökonomik. Versuch einer Neuorientierung im Bereich der normativen Lehre vom wirtschaftlichen Wohlstand. By REIMUT JOCHIMSEN. Veröffentlichungen der List Gesellschaft Vol. 21. Basel and Tübingen: Kyklos Verlag and J. C. B. Mohr (Paul Siebeck), 1961. Pp. xi and 115. DM 15.00.

The title of this book may be roughly translated as *The Foundations of Welfare Economics*. The author considers *Wohlstand* as the proper equivalent of the English "welfare." He discusses reasons why *Wohlfahrt* should not be used although *Wohlstand* in the past has also been used as the equivalent of "wealth." The subtitle states that this is an inquiry into the problem of re-orienting the field of normative economics. What Viner said forty years ago is still appropriate, namely that the scrupulous concern of economists not to encroach on ethics is only stressed in theoretical discussions but, fortunately for the value of their work, not greatly in evidence in actual research or teaching (*American Economic Review*, 1912, reprinted in *The Long View and The Short*, Glencoe, Ill., 1958, p. 8). However, recognition of the special nature of value judgments and care in their use is indispensable, and thus a methodological discussion in this field has significance.

The first part of the book is a good, rather concise survey of modern welfare economics with some emphasis upon its development. It is somewhat comparable to such surveys as De Graaff's *Theoretical Welfare Economics*, Cambridge, Eng. (1957), though the arrangement is different and additional literature is drawn upon. We are led from the ideas of the classicals, for whom welfare is tantamount to wealth, to the marginalists, who attempted the aggregation of utility; by them utility is first taken in a psychological sense but finally in the purely formal Paretian sense of preference. The development from Pigou to the present is a continuous backing and filling, trying to make assumptions more restricted, straightening out logical confusion, and in this process raising more and more doubts, with regard to such issues as inter-

personal comparisons, the compensation principle, the consistency of majority decisions, etc. The only consistent foundation of welfare economics according to the author is found by making all normative assumptions explicit. This is done through resorting to a welfare function. This function may be written in the customary way or expressed in the form of a map of social indifference curves, provided that we make clear that this map is not the result of simple "addition" of individual maps. The difficulties, though, only begin at this point because all substantial problems are now moved into the function which remains conveniently all-embracing and not well defined.

The most urgent task, according to the author, is to attain the necessary normative premises (*Wertprämissen*). It is here in the second part of the book that the author tries to break new ground—though he gives only *Ansatzpunkte*, not neat solutions. In a discussion of this kind, somewhat neglected in most Anglo-American literature, I find the main value of the book for the U.S. reader and its main originality. At least four areas are to be determined: the degree of personal liberty, social minima for the individual, societal (democratic) order, minimum adaptability of the economy to exogenous and endogenous change (p. 97).

The substantial content of the welfare function should, according to the author, be developed through interdisciplinary cooperation, to include, as expressly stated, that of philosophers and theologians. However, the author has only modest hopes. Most economists are not impressed by the widely advertised interdisciplinary approaches of the past. The author is concerned with the built-in biases of the "professionals" in the various pertinent branches of knowledge, but he hopes that they will neutralize each other. The admission of philosophers and theologians into the charmed circle will provide some antidote against overly "scientific" biases. Thus, though collaboration is not the automatic solution, it is an operational base from which we may hope to achieve something more than ever more formal generalizations. This method might be more fruitful than *ad hoc* philosophizing. A public purpose, national goals (and that is what the welfare function is about) are much talked about and such a method toward finding out about them might well be attempted with the collaboration of the professional economists.

The book contains an extensive listing of literature, overwhelmingly Anglo-American. This seems to confirm the widely held opinion that most technical work in this field is written in English.

WALTER FROEHLICH

Marquette University

Growth and Prosperity Without Inflation. By JOHN PHILIP WERNETTE. New York: The Ronald Press, 1961. Pp. v, 143. \$3.75.

The purpose of this small volume is to illuminate the nature of the obstacles impeding attainment of the familiar triad of macroeconomic goals—high prosperity, rapid growth, and stability of the price level. This subject, of course, has been the focus of six years of intensive research sponsored by the Joint Economic Committee. The voluminous material amassed by this Committee conveys few helpful consensuses; rather it reflects a wide range of pro-

fessional opinion and an appreciable bewilderment. Nevertheless, on the basis of the committee's studies the reader of the book under review could rightly expect a high degree of sophistication in the treatment of macroeconomic policy issues. From this perspective, the performance is disappointing. Wernette does raise some of the crucial questions of stabilization and growth policy, but more often than not he simply avoids trying to answer them. Where answers are supplied, they are guarded or merely superficial.

At the level of the theoretical basis for policy, for example, Wernette glosses over the very real arguments and doubts concerning the compatibility of the several macroeconomic goals. Thus, he baldly asserts without supporting evidence that there are several patterns among changes in money wage rates, real wage rates, and the price level "that not only avoid inflation and depression but also are compatible with growth and stability" (p. 49). Further, as Wernette suggests, it may be helpful to appreciate that *if* price level stability is inconsistent with prosperity and rapid growth, the inconsistency "stems from human behavior, not from some absolute economic law . . ." (p. 131). But it is harmful to imply that the goals can be made compatible by readily apparent government policies and by structural changes of modest proportions. Or again, in view of the profession's inability to reach agreement on the causes of inflation Wernette reasonably confronts the reader with the whole spectrum of causes. But, once more without sufficient substantiation, he singles out inordinate wage demands for special condemnation.

In his exposition of growth and stabilization policy Wernette concentrates on customary, noncontroversial issues. To the extent that nuances are discussed, the subtleties are limited primarily to the difficulties of timing monetary and fiscal policy. The prevailing doctrine that different policy-mixes are appropriate to different cyclical and longer-term situations is scarcely evident. Wernette offers only two specific countercyclical prescriptions for alternative consideration. The entire personal income tax rate structure should be made flexible, presumably through administrative discretion or a tie-in formula. More unusual, in a slump the government should undertake "payments to taxpayers proportional to their income tax payments in the preceding year" (p. 100). Except for very general formulations, growth and anti-inflation policies are largely ignored.

This volume was obviously designed to acquaint the general public, not economists, with the hazards of macroeconomic policy prescription. This undertaking sorely needs doing. Unfortunately, the book's apparent premises—that the public is unable to follow nontechnical, analytical reasoning and cannot comprehend the complexities involved in formulating an effective policy for stabilization and growth—utterly frustrate the fulfillment of this task. A scholar writing for the general public has a deep obligation to protect it from its essential defenselessness. Wernette fails to do this. Indeed, in oversimplifying, in posing critical questions and leaving them unanswered, and in drawing inferences where none can yet be reasonably justified, Wernette does disservice to his own commendable purpose.

M. O. CLEMENT

Dartmouth College

Intermediate Economic Analysis. By W. HARRISON CARTER and WILLIAM P. SNAVELY. New York: McGraw-Hill Book Co., 1961. Pp. viii, 424. \$6.95.

The authors of this text have accomplished their objective. They set out to do an orthodox text in economic theory, and they have done just that. "Orthodox," in this context, refers to the corpus of neoclassical microtheory as it was generally accepted about 25 years ago, and as it pertains approximately to the world that existed about 50 years ago.

Judged as an example of its genre, this is a good book; and instructors wishing to teach an orthodox, traditional course in economic theory would be well advised to give it their serious consideration. It has in large measure the major virtues of a text: the exposition is clear and thorough; there is a good balance between text material, arithmetic examples, and geometric charts; the various topics are well interrelated to one another; and there is an effective alternation of discussions of formal theory and of its relevance to some real economic problems. My quarrels with the treatment of the material covered are minor; the book includes, for example, the customary tedious discussion of elasticity, inadequately justified by the extent of the subsequent use of the concept.

The topics and their organization follow the usual pattern. The book begins with a major section on price determination under various market structures, followed by another group of chapters dealing with distribution and factor-price analysis. Two brief chapters on national income analysis conclude the treatment.

The real question at issue, in the reviewer's mind, is whether or not the market really needs yet another rendition of the orthodox approach, even a good one. It would seem that the time and energy of the authors and the resources of the publishers might have been better spent to introduce some product differentiation into the market, and to widen the choice available to the public, by offering something that does not already exist in abundance. For example, there is certainly a dearth of clear, well-written texts setting forth the somewhat more contemporary analysis of the somewhat more contemporary world. The demonstrated talents of the authors are such that they might well have made a noteworthy contribution in this connection, if they had only tried.

As it is, Carter and Snavely on several occasions march right up to the very brink of modernity, only to retreat again to the comfortable clichés of the traditional approach. Two examples will suffice. First, the authors frequently and commendably stress the uncertainty facing the firm in the marketplace. This point would seem to be a very good lead into a discussion of the basic theory of profit-maximization under conditions of uncertainty. Certainly that theory has developed and stabilized to the extent that it merits some elementary treatment in intermediate texts. But nothing of the sort was even attempted by the authors. Second, the chapter on oligopoly and oligopsony (which is otherwise very well done) frequently stresses the interdependence of the firms. The stage was therefore set and ready for a presentation of the basic concepts of game theory; but again, nothing happened.

A final point concerns the realism of textbook theory in the context of today's world. Certainly, one of the central facts of life today is the dedication

(spurred on by competition) of enormous resources to research, to development, to invention, to innovation, and to market development. In consequence, we are experiencing a remarkable and progressive reorientation of our entire way of life both as consumers and producers. True, this wheat comes with a lot of chaff; but it can hardly be doubted that the predominant tendency is in the direction of progress and improvement. New products and new technology, and their propagation in the marketplace, play a key role in the dynamics of competition. Yet, the present authors (in common with most textbook writers in economic theory) tend to regard innovation as little more than a sneaky method employed by some industries to avoid price competition. True, product improvement may well detract from the role of price as an instrument of competition, and may even result in higher prices; but surely some of the other consequences of this process deserve a more prominent place in the discussion.

SIDNEY SCHOEFLER

University of Massachusetts

Intermediate Income and Growth Theory. By MELVIN L. GREENHUT and FRANK H. JACKSON. Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. viii, 376. \$6.25.

This new addition to the list of textbooks in macroeconomic theory comes at a time when the competition is bound to make great demands on the would-be prize winners. Greenhut and Jackson make their play for a rather specialized part of the market by concentrating attention on national income analysis and avoiding any exposition of monetary theory or money and banking. This might well appeal to those whose students will take, or have taken, another course in monetary economics. It is not a simple matter, however, to leave out all those questions in connection with which money has an active role.

Similarly the authors hold their treatment of the business cycle to a minimum. In the one chapter devoted to business cycle theory, Greenhut and Jackson offer a rather personalized version of Schumpeter, Hayek, and Foster and Catchings. They end up with a Samuelson accelerator-multiplier interaction model sparked by Schumpeterian innovations. More might have been said to relate the rhythm of the cycle to the shifting conditions affecting the innovator, which would, I think, have strengthened their view of the cycle.

One feature which marks this text as unusual is the order in which national income theory and national income accounts are placed. The two chapters on accounting appear as numbers 10 and 11 (out of 16 chapters), between the chapter on the government budget and the one on the business cycle. The reason given for this order is "that an understanding of why the accounts take the form they do requires a prior understanding of what they are designed to show."

If the book were a rigorous presentation of economic theory in which a deductive system was built from postulates and the derived theorems were subjected to empirical test, it would then be proper to put things in this order. But this is not what Greenhut and Jackson try to do. When the accounts are

finally introduced in a formal way they are in some respects an anticlimax, for the student has already had to learn most of the static relations before coming to those chapters. While I am complaining about the order of the accounts I might add that I wish the opportunity to display the structure of static relations had been more fully grasped. For example, reference could have been made back to Chapter 3 to show that the accounting identities correspond to the definitional identities obtained earlier.

The authors make a considerable point of their desire to aim the text at undergraduates with little background in economics. In the early sections of the book they seem to have been most conscious of their intention and here they run the risk of achieving simplicity at the expense of failing to take up important but difficult topics. For example in their discussion of the consumption function they give little space to the reporting of the statistical evidence. Thus they ease their task of explaining the diverse record which is not consistent with any simple view of the consumption function.

Perhaps it is the attempt to simplify which has led to some errors of substance. In the exposition of the multiplier, for example, the uninteresting one-shot expenditure multiplier is worked out. The increases in income over the time periods in one year are then summed to obtain an irrelevant cumulative total. When a few pages further on a more conventional multiplier is set out, it is unclear what the relation between the two is.

Furthermore, as a consequence of oversimplifying the early chapters there is inadequate equipment for the tasks taken up in later chapters. The section on growth, for instance, suffers from the lack of a long-run consumption function and a Hicksian cycle model capable of tolerating high accelerator values. The growth sections suffer in other respects as well. A brief statement is made, for instance, about the inconsistency of the warranted rate of growth and the growth of the labor force resulting in chronic unemployment. This theoretical possibility is mistakenly intended as a description of modern capitalist countries such as the United States in which a potentially high rate of capital accumulation can assure full employment, even labor shortage.

A number of troublesome omissions in early chapters also weaken the growth sections, such as the lack of attention to the effect of capital stock on investment, liquid assets on consumption and investment, the distinction between marginal productivity of capital and the marginal efficiency of capital, and then later between these and the incremental capital-output ratio. The distinction between income movements when there is unused capacity among factors generally and when the economy is up against the full employment barrier is never made clearly. This last omission is particularly disturbing, for it is responsible for at least some of the confusion about inflation. However, not all of the trouble with the passages on inflation can be laid here. It would be better to have had an explicit theory of inflation which depends on either demand, cost, or structural shifts. Perhaps this is a result of the arbitrary division of the subject in the authors' minds which they may believe, relieved them of this responsibility. But when it is inconvenient to avoid the subject, the results are awkward. Thus they conclude about the recent price-employment record, "the parallel condition of unemployment on

the one hand and inflation and rising GNI on the other was the result of capital goods over-expansion compared to savings, which was in turn, tied up with industrial bottlenecks and business miscalculations" (p. 328). But I am fairly sure it can be counted on that students are less critical than reviewers.

R. S. WECKSTEIN

Williams College

National Income: Statistics and Dynamics. By JOHN S. HENDERSON. New York: Harper & Brothers, 1961. Pp. vii, 439. \$6.50.

This is a text for undergraduate courses in aggregative economic analysis. Measurement of the national income and the determination of its level are combined with problems of growth and fluctuation within a unified framework of analysis. It is the third text of similar type to appear within the past year and may well prove, in many teaching situations, to be the best of the three, especially since the author never assumes that students will bring with them any significant carryover from other courses they may have had.¹ In fact, so far as the static analysis is concerned, Henderson suggests that the text is suitable for use by students who have had no other course in economics than a reasonably strong one in principles. I agree with the author. The best students may find the first few chapters too simple, but they will certainly meet the needs of the average student. There is more than ample material, rigorously presented, to whet the appetite of all students as the text develops.

Part I, made up of eight chapters, is devoted to a lucid, step-by-step development of the basic Keynesian static national income analysis. Keynes' fundamental framework is combined with Hicks' diagrammatic summary, with Wicksell's interest rate concepts neatly fitted into the framework. The section concludes with two fine chapters on monetary and fiscal policy; these are skillfully handled, and should contribute considerably to student understanding of the basic importance of theory.

Part II consists of seven chapters examining the dynamics of national income analysis. This portion naturally assumes a grounding in static theory of the type covered in Part I. Here the author draws upon Samuelson's model of the interaction of the accelerator and the multiplier, the Harrod-Domar growth model, and discusses the cost-push and demand-pull concepts of inflation. The latter two ideas, and others, make up the final chapter which serves as an illustration of the dynamic aspects of policy-making. The whole text will serve as a solid foundation for additional assigned readings in the journal literature.

Mathematics must inevitably be employed in any theory text today; Henderson has wisely kept it within the bounds of the college algebra with which

¹ The other two works which have come to the reviewer's attention are: T. F. Dernburg and D. M. McDougall, *Macro-Economics*, New York 1960, and Gardner Ackley, *Macroeconomic Theory*, New York 1961. The latter appears most suited for first-year graduate students and quite advanced undergraduates who have elected the course; the former text covers much of the same ground as Henderson's volume, but not, in the reviewer's opinion, with the same clarity, simplicity, and thoroughness.

all students are supposed to be equipped. In addition, graphs, which are extensively employed, are developed early in the book and their style is consistent throughout, so that the technique, once understood by students, need not be retaught.

While Henderson suggests that the two parts of the text may be used independently, the first part for a course in national income, and the second for a course in cycle theory, it would be my inclination to utilize the entire book as the basic text in a one-semester course in macroeconomics, either preceded by or followed by a one-semester course in price theory. The year's work would then serve as a basis for more advanced work in theory. But however the curriculum be organized, this text deserves widespread consideration; it is written to the level of student understanding; it is economical in its use of resources; above all, it provides the essential tools for macroeconomic analysis of a significant sort.

VICTOR C. HECK

Mercer University

Introduction to Macroeconomic Theory. By GERALD SIRKIN. Homewood, Ill.: Richard D. Irwin, 1961. Pp. xii, 252. \$6.50.

Income theory has been well served with good elementary texts. Sirkin adds to this abundance by offering a concentrated version that still covers most of the important topics. His brevity causes a few difficulties, but his treatment of the subject serves as a stimulating introduction to this field of study.

The author has divided his book into three parts: Fundamentals; The Determination of Aggregate Demand; and Problems and Policies. Since this text is designed for students who may not have had any prior training in economics, Sirkin introduces with great care the basic ideas and limitations of the national income accounts. He has, however, neglected any mention of the money-flow accounts or the materials used in aggregative input-output analysis. Because of these omissions the book fails to offer students a fully-developed view of the data currently available for comprehensive macroeconomic analysis.

The third chapter, "An Economic Skeleton," leads the reader rapidly into simple aggregative models, equilibrium, consumption and savings functions, and a variety of simple to fairly complex multipliers. Since this is all presented in 24 pages, the instructor is compelled to supply firm guidance to keep students on the track. An unusually fine set of graphs, however, provides admirable assistance for this task.

Three of Sirkin's first chapters on the determination of aggregate demand are highly-polished examples of exposition. His discussions of "Personal Consumption," "Private Domestic Investment," and "Money and Aggregate Demand" highlight the most significant aspects that should be understood by undergraduates. Unfortunately, the other two chapters in that section fall well below the level of the others. In analyzing "Public Demand" the author breezes over the contribution of government expenditures to the national product with only a most perfunctory analysis. This is surprising in view of the excellent job that is done on consumption and private investment. Again, in

the chapter on "The Skeleton Reassembled," the vital task of summarizing the interactions of all sectors is superficially performed with only brief notes on static and dynamic models.

Government expenditures and policies again receive only passing comments in the theoretical sections of the chapter on "Income Fluctuations." Sirkin clings primarily to his simple two-sector model. He does, however, inject somewhat more detail on the role of government later in this chapter in his well-documented review of fluctuations between 1929 and 1959.

"Inflation" and "Growth in a Developed Economy" are both presented in a highly creditable manner for this elementary level. The author distinguishes among several varieties of inflations and ties his discussion of these closely to his earlier analysis. He sets up the basic growth model with well-defined variables and provides a short example which complements his model very satisfactorily.

In the final two chapters, Sirkin takes up "International Aspects of Income Analysis" and "Macroeconomic Policies." The former concentrates on factors related to the balance-of-payments equilibrium, including the influence of growth and inflation. The policy chapter enlarges on these problems by taking into account the conflicts and associations among various possible economic objectives. The familiar quartet of stability, growth, inflation, and balance-of-payments equilibrium all appear. Fiscal and monetary tools for carrying out policy objectives receive attention, even though the analysis seldom probes very deeply.

Taken as a whole, and considering its target as an elementary text for income theory, this book deserves serious consideration. Many sections are written extremely well. It is up-to-date and contains valuable references that may be used for more intensive study assignments. Its condensed treatment of the subject has a great advantage over alternative texts that tend to overwhelm students with too much detail. While there are a few serious gaps, these may be filled readily by alert instructors.

DAVID A. BAERNCOFF

University of Oregon

Economic History; Economic Development; National Economies
American Economic History. Edited by SEYMOUR E. HARRIS. New York: McGraw-Hill Book Company, 1961. Pp. ix, 560. \$7.95.

This is an anthology of fifteen articles written specifically for the volume by twenty experts and edited by Seymour Harris. According to Harris' prefatory remarks, the contributors were chosen "on the basis of their command of their fields and their general competence in economics," and they form a distinguished list, indeed. Moreover, "no attempt was made to select authors of any one school"; the diversity of point of view is marked. This combination of expertise and diversity of viewpoint is excellent from the point of view of the reader, but presents difficulties for the reviewer due to the variations in style, coverage, approach, emphasis, etc. In a sense, the title of the work is misleading since it connotes a balanced, integrated treatment of all phases of

American economic history, i.e., a text. A more descriptive title for the volume might have been "Selected Studies in American Economic Development" since it is a collection of articles dealing with particular aspects of the subject but does not provide coverage of all areas adequate to meet the needs of most students. The word "development" is suggested since major emphasis in most of the articles is on economic growth and the emergence of modern institutions.

There are four major sections: Part I, "Some Major Issues," is introduced by a provocative discussion by Arthur Schlesinger, Jr., primarily concerned with a review of thinking regarding the role of government in economic life. Alfred H. Conrad is concerned with income, growth and structural change, and attempts to "explain the growth of national income in the nineteenth century by applying a simple capital adjustment theory of growth to the three spurts of growth that marked the period." Peter B. Kenen explores the problems encountered in the construction of some of the statistical series useful in determining American economic development and the trends that the series reveal.

Part II considers broad issues of policy. After an introduction by Harris, J. G. Gurley and E. S. Shaw consider "Money," concluding that "American monetary history can be interpreted in terms of a race between growth in supply of money and in demand for money in economic units' portfolios"—with reference to the role of financial intermediaries, of course. Harris then discusses fiscal policy, stressing particularly the changed attitude toward the place of government spending in the economy. A review of economic fluctuations by Asher Achinstein focuses on major and minor cycles, long waves, intermediate and construction cycles in American experience. This is followed by a discussion by Douglass C. North on the United States in the international economy over the period 1790 to 1950, which is particularly useful in analyzing the impact of international trade and the balance of payments upon U.S. development. G. A. Lincoln, W. Y. Smith, and J. B. Durst contribute a chapter on the history of mobilization and war economics from the Revolution to the present.

Part III, "Determinants of Income," begins with an analysis of the significance for economic growth of population increase and changes in age structure. This is of particular interest in the light of expectations regarding population growth and mix in the current decade. This is followed in logical sequence by "The Pattern of Employment Since 1800" by Stanley Lebergott, which examines changes in the distribution of the labor force, causes and consequences. Policies regarding land, water, energy and minerals are reviewed by Joseph L. Fisher and Donald J. Patton in "Natural Resource Policies in American Economic Development." Merton J. Peck discusses transportation in terms of two major issues: its role in American development and the effectiveness of government regulation. This is followed by two chapters by Lloyd Ulman, "The Development of Trades and Labor Unions" and "Unionism and Collective Bargaining in the Modern Period." An examination of the changing role of agriculture by John D. Black completes this section.

Part IV, "Regional Growth," consists of Richard A. Easterlin's discussion of regional income trends in the period 1840 to 1950.

Most chapters have a brief section setting forth the analytical framework to be employed in the examination of U.S. experience. Many of the articles make an effort to relate their discussion to current problems and developments. The inevitable repetition is surprisingly small in view of the number of authors.

The book invites comparison with similar collections offered in recent years by Harold Williamson, Lane and Riemersma, Lambie and Clemence, etc. Though generalizations are dangerous for a work of such diversity, by and large the articles in this volume are more analytical. However, the book is certainly far narrower in coverage than the others. Moreover, some areas receive disproportionate attention. As an example of this imbalance, the two chapters on labor unions occupy 116 out of a total of 547 pages or over 20 per cent of the book. While these chapters are of great interest, when compared with the 38 pages devoted to agriculture or the 25 pages devoted to transportation, they are far out of proportion for a balanced treatment.

Teachers of American economic history will find a use for the volume as a supplement to, rather than a substitute for, one of the standard texts in the field. Because of the variation in the level of analysis employed, they will probably find some articles of greater pedagogic utility than others.

H. JEROME CRANMER

*American Bankers Association and
Drew University*

Recursos financieros y reales para el desarrollo. By JOHN H. ADLER. Mexico: Centro de Estudios Monetarios Latinoamericanos, 1961. Pp. 148.

The basic subject matter of this booklet of four essays is economic policy. While at first sight there does not appear to be a direct connection between the four papers, they do have in common the fact that they constitute well-reasoned attacks on certain "sacred cows" of economic policy. Since some of the policy views under attack are widely held in the developing countries, many Latin American economists and intellectuals, to whom this book is presumably addressed, might find the prescriptions contained in the essays bitter pills to swallow.

The first three papers are concerned with taxation and public spending for stimulating economic growth. The last essay analyzes the role of natural resources in the various stages of economic development.

The collection is a valuable contribution to clear thinking in areas which have been muddled either through superficial analysis or value judgments. While much of the ground that this book covers has been gone over before in the economics literature in English, its presentation in Spanish will make a much needed analysis accessible to a vast audience which has had only limited opportunities of examining these issues before.

The arguments put forth in the first essay might be the most difficult for policy makers in the lesser developed areas to accept. Adler vigorously questions the wisdom of highly progressive taxation in poor countries on the

familiar ground of its constituting a disincentive for capital formation. For the same reason he attacks redistributive measures for the purpose of social justice. Adler prefers to substitute for the equity principle of taxation a "development criterion" based on the *net* contribution of a government expenditure toward economic growth ("net" in the sense of discounting from the benefits of the expenditure the negative effects of the taxes to finance the expenditure). Any redistribution of income should be in favor of the entrepreneurial group in order to foster investment activity.

Adler adds a few more prescriptions such as that investment in basic services should be tax-financed, that public works projects should be evaluated on the basis of "full cost" pricing (including depreciation and profits), and that one of the public investment criteria should be the maximization of tax yields from the investment.

These recipes certainly are not easy to follow in a developing country. First of all, a strongly developed social consciousness will make it politically very difficult to think in terms of maintaining a highly unequal distribution of income (not to speak of a widening of the distribution as might be implied by Adler's argument). Secondly, and perhaps even more important, there is no assurance at all that more income for the upper-income groups through lowering or not increasing the progressiveness of the income tax would lead to greater capital formation. The point so often made in lesser developed areas is that the upper-income groups have a very low propensity to invest because of their lack of entrepreneurship and other factors, and that therefore the government must siphon off the potential savings in order to undertake the necessary capital formation for economic development. Although this essay is well argued, I doubt that it will make many converts in Latin America.

The second and third essays deal with the difficulties of deficit spending as a tool of economic growth. In the second paper Adler shows that the major obstacle in the way of stimulating development through deficit spending is the existence of inelastic supply sectors in the lesser developed areas. Because expansionary measures will bring about a redistribution of income in favor of the bottleneck sectors, automatic inflation will be set off long before the full-employment level is reached. In an open economy, of course, inflation might be avoided or mitigated through increasing imports sharply, but this would bring balance-of-payments problems.

It is clear that Adler advocates an attack on the supply rigidities rather than a demand expansion in order to accelerate the rate of economic growth. His discussion in this essay will find favorable echo in Latin America where for several years the "structuralist school," in its debate against the International Monetary Fund, has argued that inflation in these countries is to a large extent based upon inelastic supply problems.

The conclusion of the third essay is very similar, although its line of reasoning runs along an entirely different path. Here Adler attempts to show, with the help of an algebraic model, that a "temporary" inflation provoked by deficit spending (or other measures) cannot bring a permanently higher level of capital formation. Either, says Adler, increased investment activity

reverts to its previous low level or the inflation will not be "temporary" but lead to accelerated price increases.

In the last essay Adler's analysis confirms the proposition that the importance of natural resources declines in successive stages of economic development. While wealth in accessible resources will be a great help in starting the development process, because it lays the basis for export industries and therefore stimulates foreign capital investment, these factors are not as important in later stages of economic growth. This last paper is very useful also in providing a concise discussion of many general aspects of economic development problems.

For Latin Americans, Adler will appear to be a curious mixture of a fiscal "purist" and an economist thoroughly aware of the "structural" difficulties in economic growth. While many would look upon this as an inconsistent combination, I believe that the book will help to show the basic compatibility of that position. If more works by U. S. economists experienced in the problems of economic development were published in Spanish, I am sure that the Latin American intellectual would cease generalizing the image he holds of the North American economist as being an orthodox theorist who has little understanding of the real-world processes of economic growth.

JOSEPH GRUNWALD

*Institute of Economic Research,
University of Chile*

Latin American Issues: Essays and Comments. Edited by ALBERT O. HIRSCHMAN. New York; The Twentieth Century Fund, 1961. Pp. 201. Paper, \$1.45.

This is a good little book on some of Latin America's pressing problems, especially inflation, land reform and the free-trade zone. All but one essay, that of Thomas F. Carroll on land reform, have emerged from a study group set up by the Twentieth Century Fund to promote a dialogue between *latinos* and *yanquis* on current matters of economic policy in Latin America; there are four of the first to six of the second. Each essay adds something to a lively discussion.

About a quarter of the book is concerned with the controversy on inflation between "monetarists" and "structuralists." By now the battlefield is covered with the debris of other wars, but the essential problem is, as Roberto de Oliveira Campos points out, the usefulness of monetary and fiscal policy in checking inflation and the relation between structural factors and the inflationary process. He lobbs over several well-directed shots at the structuralist positions, while David Felix and Joseph Grunwald, in fair, sympathetic but not uncritical accounts of the structuralists, underscore the force of their arguments. Both these authors, who are very much imbued with the Chilean experience, stress that monetary-fiscal action is necessary but not sufficient to bring on the economic growth that is the chief, if not exclusive, concern of the structuralists. Both also suggest that the single-minded devotion to growth may preclude successful action against inflation except by creating an iron-clad statism. Felix's essay indicates that there is a lamentably narrow area

for growth with monetary stability for societies lacking social cohesion. The debate, with insufficient clarity in my opinion, also brings out the asymmetry in the rapidity needed to fight inflation and the long period necessary to carry out tax and land reforms and to remove structural bottlenecks and supply rigidities. Moreover, even if it were admitted that monetary and fiscal measures retard growth, create unemployment and intensify immobilities, letting inflation run on unchecked in order to concentrate on structural problems worsens these same problems; Campos makes much of the induced bottlenecks that inflation brings about.

Raymond F. Mikesell shows that the free-trade zone set up by the Treaty of Montevideo of 1960 will not produce free trade. He writes:

The Treaty was drawn with the deliberate intention of making it unnecessary for any member to make a reduction in its tariff or other barriers with respect to any particular import, or even to undertake a *substantial* reduction of the *average* level of duty or other barriers on its imports, as a matter of compliance with the Treaty obligations (p. 136; his italics).

Its purpose, rather, is to foster the exchange of new manufactured products within the zone by agreements of industrial complementarity that might well come to be private cartel arrangements made at the expense of the captive consumer. But Mikesell also points out that the Treaty's insistence on "reciprocity," though designed for other purposes, may avert this danger. This principle aims to bring about an equality in any new zonal export trade that may arise from concessions members offer each other. This principle not only is directly counter to the productive reallocation of resources within the zone but may keep new trade so low that, along with other restrictive clauses of the Treaty, the hoped-for changes in trade and investment will never occur. It seems to follow from Mikesell's analysis that the operation of the Treaty will have unfortunate consequences or none. Victor L. Urquidi's expression of faith in it does not shake this conclusion. His brief comment suggests that a rapidly growing population, as well as other circumstances, are pushing Latin America into protected regional industrialization. It would thus seem that export-oriented manufacturing industries in Latin America are coming to have the same function in absorbing growing labor supplies that digging holes and filling them had in manufacturing countries in the 'thirties.

Carroll's contribution is a smooth, straightforward account of some problems arising from the fact that roughly 90 per cent of the land in Latin America belongs to only 10 per cent of the owners. After discussing the different types of land holding, he briefly tells the story of reform efforts in Mexico, Bolivia, Guatemala, Cuba and Venezuela, and ends with short notes on colonization schemes and land taxation. He also expresses pessimism as to the peaceful acceptance of needed agrarian reforms. "With the possible exception of Venezuela," he writes, "policy tends to polarize on one side in a 'do nothing' attitude and on the other in a radical, revolutionary stance" (p. 200). This remark raises doubts about the optimism of most other contributors concerning Latin America's future.

In his essay Albert O. Hirschman sketches sympathetically the historical

attitudes of Latin America toward the cause and cure of its economic backwardness. He travels from post-independence days to contemporary Latin American critics of the disguised socialism of the U.N. Economic Commission for Latin America. It comes as a surprise that he finds "considerable originality" (p. 36) in the ideas he reviews for they seem to me, at any rate, to be uniformly derivative. Victor Alba strikes a more accurate note in pointing to the "naturalization" of outside intellectual borrowings.

There is also an interesting discussion of Pan Americanism in which an anonymous American claims that less close relations between the United States and Latin America would make for better relations. In brief comments Hirschman agrees and Lincoln Gordon demurs. Their remarks are judicious and stimulating. The book is paperbound and lacks an index.

THEODORE A. SUMBERG

New York City

The Soviet Industrialization Debate, 1924-1928. By ALEXANDER ERLICH. Cambridge: Harvard University Press, 1960. Pp. xxiv, 216. \$6.00.

Here is an arresting account of the debate on the pattern and speed of industrialization which engaged the best brains in the Soviet Union during the late 1920's. What makes it particularly interesting is that some of these economic theoreticians and strategists were themselves politically active and making the very history of the period during which they hammered out plans with which each camp in the debate purported to transform a devastated economy into a viable one. Examples of the combined economic theorist and political activist are rare indeed. In fact, such examples typically arise in periods of revolution, as in the case of Hamilton after the American Revolution and of Turgot on the eve of the French Revolution. The Russian case represents the most desperate necessity, where the political leaders were forced on the spot to formulate theories and plans for their own survival.

Professor Erlich has largely succeeded in an Herculean attempt to recount the debate in a short volume which obviously emerges from lengthy research into such a tangled jungle of argument. Moreover, the book is intellectually exciting, although difficult reading.

In order to clear the ground for the theoretical debate the author has chosen to separate out as an appendix a brief chronology of events from 1921 to 1929. But this, alas, constitutes the only flaw in the book, because the historical events within and impinging on Russia from the first world war on are precisely the background against which the industrialization debate took place and can now be understood. Were this background available or sketched in more fully by Erlich himself, his own skill in unraveling the complications of the debate would be all the more evident.

Erlich's book starts with 1921 and the New Economic Policy which Lenin himself had instituted after the famous Kronstadt sailors' revolt. The new program, which gave greater freedom of private trade and market incentives to the peasants, was designed as a breather and, as the leftist opposition later called it, a means of providing "primitive socialist accumulation," the alleged counterpart to Marx's primitive capitalist accumulation. The NEP did

not work as planned, however, except to enrich a relatively few Kulaks. As early as 1923, Trotsky had warned the Party Congress of the disastrous lag of industry behind agriculture. Further, in the same year the famous "scissors crisis" developed, in which industrial goods did not sell as a result of their price increases, at the same time that the peasants were simply consuming and hoarding their grain.

In 1924, at the *most* inopportune time, Lenin died, after having recommended that Stalin be removed from his then moderate position of power. Nonetheless, in 1928-29, Stalin, once the representative of the immobile peasantry, had succeeded to absolute power, and began to stamp a long era of terrorism upon all opposition both at home and abroad. During the period from 1924 to 1928 Stalin had adhered to the policy of the NEP, which received its continued theoretical support from Bukharin and Rykov, but was declared bankrupt as early as 1924 by the left-wing opposition headed by Trotsky and Preobrazhensky. Yet to general amazement, Stalin's subsequent policy, evidenced by the rapid industrialization program of the first five-year plan of 1928, far surpassed the industrialization program called for by the left-wing opposition.

Trotsky and company were deported in 1929. Bukharin and Rykov were then denounced as "right-wing deviationists" in the same year. Finally, all the debaters and agitators were purged within or murdered outside the Soviet Union. Preobrazhensky, the "hyper-industrialist," was purged during the trials of 1936-1937. Bukharin, at one time head of the Communist International and editor of *Pravda*, whose "snail's pace" industrialization program had been the official policy of the late 1920's, was himself purged in 1938. Trotsky, after years of exile, was murdered by an agent of Stalin in 1940 in Mexico City.

The debate itself was opened by Preobrazhensky, the chief theoretician of the left opposition in 1924. His full program was set out in his book *Noyaya ekonomika* in 1926, although the main line had been made clear in his article on "The Fundamental Law of Socialist Accumulation" of 1924 and was almost at once denounced by Bukharin.

Erich wrote an excellent article as early as February 1950 in the *Quarterly Journal of Economics* entitled "Preobrazhenski and the Economics of Soviet Industrialization," in which his full appreciation of the master-mind of the debate is more evident than in this current volume, which gives all sides a full hearing. All the evidence points to Erlich's correct evaluation of Preobrazhensky's superiority of judgment over all the debaters, and it may well be the case that this judgment should have been more explicit in this book.

Preobrazhensky's program was essentially that of ending the NEP, of extracting the agricultural surplus through increased industrial prices, and for rapid industrialization through borrowing from abroad in order to purchase advanced equipment for industrialization based on a more roundabout technology which would build *ahead* of current demand. Bukharin and Rykov, whose program was then in effect, instead pleaded for further placation of the stubborn peasantry, which, once liberated from the landlord, at

first refused to buy industrial goods and later refused to sell its own produce. Bukharin's whole program was dominated by a fear of the peasantry and a faith in both the internal market mechanism and the possibility of capital imports. However, he was oversanguine as regards an ultimate union of the workers and peasants, contrary to Trotsky's warning that the two groups were in essential conflict. Similarly he ignored Trotsky's warning that democratic socialism could not be built in one country alone surrounded by a hostile capitalist environment.

In addition to the extreme leftist position of Preobrazhensky, who considered the long run paramount and based his program on the most advanced technology available, and the extreme rightist position of Bukharin, whose program was centered on providing maximum incentives for immediate production by the peasantry, there were other intermediate positions taken in the course of this debate.

As early as 1925 Shanin and Sokol'nikov, both important political figures at the time, while attempting to keep distinct positions, did, in fact, agree that industrial expansion, carried on within obsolete technology, had reached its limit, and that the most profitable area of investment lay in agriculture. At the same time, Bazarov, one of the party's leading intellectuals, preached rationalization of industry and especially electrification, as well as foreign trade as a means of industrialization. Moreover, Bazarov recommended using the internal market mechanism as a check on the efficiency of central planning. Further, he continued throughout the debate to promote one temporary expedient after another and also tried to bring the extremist positions closer together. By the end of the debate the extremists were, in fact, closer together, as Bukharin realized that industrialization would have to be rapid even to take care of replacement demand alone, and Preobrazhensky realized that there were limits to the forced saving by the peasantry for which his program called.

Erich refers to Stalin's "revolution from above" which was made possible by a "unique blend of creeping fear, exhilaration of battle and *la-patrie-en-danger* psychosis" (p. 181), and quite rightly asserts that in such an atmosphere there was no room for continued theoretical debate. Yet the problems persisted and the debate continued, more audibly after Stalin's own demise.

Erich's book is not only a skilful examination of a theoretical debate. It should constitute a lesson for the model-builders of the advanced countries who are generally unaware of this 35-year-old theoretical struggle in a be-seiged and backward country. While the author does develop most of the implications of the debate, he does not indicate one possible conclusion. Marx himself, although the theorist of capitalism rather than of socialism, was probably the best prophet of all in predicting that *democratic* socialism was more likely to occur in an advanced rather than in a backward country. In any case, we must be grateful to Erich for his concise exposition of an unsystematic debate and for the fact that this book will probably lead to further explorations back into Russian history and ahead into the problems of the now developing countries.

BERNICE SHOUL

Cambridge, Massachusetts

Estructura económica de España. By RAMON TAMAMES. Madrid: Sociedad de Estudios y Publicaciones, 1960. Pp. 677.

With the support of the International Monetary Fund and the OEEC, the Spanish government in July 1959 adopted a program of monetary stabilization and trade liberalization the success of which has led to new and increasing interest abroad in the Spanish economy and in the opportunities for trade and investment. Spain today is clearly a developing country. Although agricultural and mining products (and among them, citrus fruits) account for the bulk of her exports, some sectors of Spanish industry—notably textiles, shipbuilding, iron and steel, and a number of consumer goods—have a long history of high-quality production. During the past 20 years, moreover, and especially since the early 1950's when substantial United States aid began flowing into the country, priority has been given to industrial development which has shown considerable progress in a hitherto protected environment.

While a good deal of the present-day structure of the Spanish economy has been revealed by the annual *Estudio Económico* of the Banco Central (a commercial bank) and by the national-account estimates prepared by the official Consejo de Economía Nacional, to date there has been no general, comprehensive handbook on the history, development, and performance of the economy as a whole and of its various sectors. The book under review does not quite fill that gap, although the wide range of topics covered, the great wealth of detail, and the mass of statistics (which often go back to the early part of the century and, in most cases, through 1959) undoubtedly make for a collection of material such as, to quote the preface, "cannot be found gathered in any other single work."

The volume, in a total of 38 chapters, deals with the country's economic geography and population; agriculture (10 chapters); industry (10 chapters); transportation; services; foreign trade; national income; the institutional framework; and problems of development, stabilization, and European economic integration. The author's approach and treatment has been such that these parts, and even individual chapters, can be read as separate and self-contained monographs. The professional economist (as well as the economic historian) who is willing to make his way through the mass of material will find much that is of interest, particularly in the chapters on the banking, monetary, and fiscal systems (Ch. 26, 31, and 32), on commercial policy (Ch. 28), on national income (Ch. 30), and on regional planning (Ch. 36). The value of these chapters, most of which include a historical survey, is enhanced by numerous footnote references to what appears to be a fairly vast body of generally unknown Spanish economic writings.

Yet the book suffers from a number of basic weaknesses. For one thing, the extensive coverage and the author's obvious desire to include as much information as possible make for an exceedingly uneven treatment and hence for a finished product that bears similarities to both the World Almanac and the encyclopedic surveys prepared by the Woytinskys. This somewhat jarring juxtaposition of statistical fact and higher scholarship is accentuated by the author's often clumsy attempt to incorporate elements of economic theory (such as the equation of exchange, the multiplier, and the marginal propensity to import) into his otherwise quite factual presentation. Secondly, while

the monograph-like treatment of each section and chapter greatly facilitates the task of the reader interested only in a particular topic, it makes for a complete lack of integration of the material and leaves the book without a central, unifying theme. Finally, there is no real evaluation of current economic conditions and prospects, or recognition of the still marked degree of inflexibility, monopoly, and controls in the Spanish economy (such as even official Spanish agencies, including the Ministry of Commerce, have shown recently). However, such criticism probably expects of the author more than a private individual could say under present circumstances.

JOHN HEIN

Federal Reserve Bank of New York

The Development of the American Economy. By AUGUST C. BOLINO. Columbus: Charles E. Merrill Books, Inc., 1961. Pp. xi, 609. \$7.50.

Although American economic development textbooks have appeared in growing numbers in recent years, they vary widely in quality, and first-rate studies are always welcome. In terms of conception, organization, analysis and narration, Bolino's textbook is first-rate. Probably its chief merit is its fundamental economic approach to American history—an approach which skillfully blends economic thought and practice and identifies "economic causes and results in the maze of historical events." Growth theory and concepts of capitalism are traced in the writings of Smith, Marx, Sombart, Weber, Tawney and Schumpeter, not to mention the traditional interpretations of American historiography.

It is not surprising that scholars who glorify the role of innovators in history should themselves experiment in constructing textbooks. One of Bolino's chief innovations consists of periodization. Since the pace of development has varied among different economic sectors, he feels it is incorrect to believe that the Civil War divides the premodern from the modern economy in all cases. Rather, he selects significant watershed periods, or periods of so-called economic revolution, to mark the two-fold division of the book. The periodization charts which appear inside the front and back covers of the book help the reader to see the relationship between the chronological and topical approach.

Part I, which occupies about one-third of the book, treats the beginnings of the U.S. economy. Three chapters (59 pages) are devoted to the European background, colonial period, American Revolution and Constitution. When it is considered that the year 1789 ends the first half of American history, the reader may wonder if this long and eventful period has been sufficiently appreciated. Subsequent chapters in Part I concern agriculture, mercantile capitalism, money and banking, transportation and labor. As a central theme, government economic policy in the early national period is regarded as a blending of the best features of Jeffersonianism and Hamiltonianism. The reader who may be surprised to find only one index reference to the Civil War will discover that economic aspects of this struggle are discussed topically in different chapters.

Part II concerns recent economic history, or the period subsequent to the various economic revolutions. Two main trends are stressed: "the declining

influence of the West in general and the farmer in particular"; and "the growth of American manufacturing and the rise of the United States to a position as the leading industrial power in the world." The author brings the complex strands of the economy into focus in nine chapters dealing with big business; big labor; big government; the farm problem; money and banking; business cycles; transportation; modern war; and productivity, income and growth. In the generally optimistic view of the author, U.S. industrial capitalism enjoyed periods of exuberant growth accompanied by financial excess and widespread abuse. Countervailing forces then set in motion popular movements to harness business enterprise to broad social objectives. But not until the great depression of the 1930's was it possible to reform capitalism so as to achieve a balance between forces making for enterprise and growth and those concerned with social justice. After surveying leading problems in the contemporary scene, the author concludes: "The problems, then, are minimal, and we can look forward to a highly prosperous decade in the sixties."

If the question of prosperity in the 'sixties is debatable, that of America's growing involvement in the international economy is beyond dispute. Apparently this "indisputable" question is of little concern to the author, for international relationships are treated only peripherally, chiefly in connection with the two world wars. Indeed, little effort is made to illuminate the background of the emerging multipowered world and the challenges and opportunities that lie ahead in our relations with the developing nations.

Despite the neglect of international economic relationships, Bolino's textbook has several features which will recommend it to instructors and students. Each chapter has a summary, review questions, and additional readings which are listed topically. A feature of special prominence is the incorporation of new literature, including journal articles and studies by the National Bureau of Economic Research, Hoover Commission, Paley Commission, National Commission on Money and Credit, and investigations of Congressional committees. Ably summarized, these studies enable the reader to probe deeply into problems, and with the aid of hindsight, weigh the merits of alternative plans of action.

The author has written an economic development textbook which successfully integrates basic principles of economics and growth theory with the American experience. It is a problem-oriented book, drawing on historical events which have surrounded these problems in the past and present. The analysis and interpretation are of a high order. The book, which is intended for all levels, is very readable and teachable.

RICHARD B. SHERIDAN

University of Kansas

An Economic History of England 1870-1939. By WILLIAM ASHWORTH. New York: Barnes & Noble; London: Methuen, 1960. Pp. vi, 438. \$7.00.

This is an English textbook. It is therefore of a different genre from that of the usual American textbook. In Ashworth there is a conscious and explicit attempt at high-order scholarship; not so much so as in J. H. Clapham but more so than in W. H. B. Court. Both Clapham and Court cover the period

treated by Ashworth, but also much else. Ashworth utilizes a great deal of the recent literature dealing with events falling within the period, literature which was not available to Clapham or utilized by Court.

Being a textbook the narrative is mainly descriptive of the events of the period. Where Ashworth does attempt explicitly to utilize economic analysis of his materials the results can be pretty strange; e.g., in the underemployed economy of the mid-Victorian era (a great deal is made of this underemployment) Ashworth notes that the high rates of spending out of current incomes by the "labouring masses" still had no "adverse effects upon the growth of the national capital" because their relative share of national income was still so small (p. 20). Throughout, this is the treatment of net capital formation, a treatment which would be appropriate to a fully employed economy where full utilization of resources would necessitate a cut in consumption to increase investment. This in the world of Ashworth's Victorian England is pretty strange; he evidently believes that, in spite of underemployment, an increase in consumption must necessarily constrain investment.

Again, we find (p. 103) that in coal mining in the 1880's "... further exploitation of this wasting asset was beginning to involve increasing costs." Did they operate *before* the point of diminishing returns? Or if this is supposed to be a "long" run argument, rising unit costs tell us nothing *by themselves* of profitability of operations, and indeed, the continuing expansion of output in this period noted by Mr. Ashworth indicates that "increasing costs" incurred in working this "wasting asset" were being currently absorbed by revenues. There is a lot of this sort of thing in Ashworth's book. On the other hand, in too much of the book when events under discussion virtually cry out for some use of economic analysis none is forthcoming; e.g., there is no systematic discussion of the possible consequences for British investment of the high interest rates and falling prices which resulted from government policy in the 1920's (Ch. 16). Perhaps there were none and the long disinflation of the 1920's made industrial investors feel bullish. If so, what held them back?

A further general criticism which must be made concerns the shapelessness of the discussion, due both to a lack of any general thesis (understandable in a textbook) and of any sustained application of economics to the organization and treatment of materials. The lack of a firm framework of economic analysis means that the reader will travel through chapters of descriptive materials, data, discussions of institutional change and so forth, without finding any underlying point to the discussion. A baleful example of this is the narrative of Chapters 14-15 wherein the reader finds a detailed treatment of structural and organizational changes in 1918-1939 which is not illuminated by systematic discussions of either the "cyclical" or "transformation" (he has Svennilson in the footnotes) problems of the period. As a result the great events stand in splendid isolation like the Colossus of Memnon while the minutiae, like the discussions of changes in retailing practices, just choke up the narrative. The book therefore is difficult reading and the reader who doesn't already know a good deal of the economic history of these years may find himself at sea a good bit of the time.

A continuing irritant to this reviewer is the unreconstructed "Bleak Age"

treatment of industrial growth in the early chapters. It has been a long time now since rising income and investment have been viewed as unmitigated horrors which destroyed Merrie England. There has been a lot of work recently regarding the standard of consumption in Britain and the industrialization of the country before 1850; so far as I know no one applied the "pessimistic" view to the long Victorian boom of 1850-1870 until this volume.

There are many criticisms of detail which could be made. But this would be the case in almost any study of economic history of such complexity and covering such a long period of time. The present reviewer's opinion is that this book has serious flaws as a result of sometimes bad, sometimes non-existent, application of economic analysis to the material at hand. The effects are ubiquitous in the book. On the favorable side, Ashworth has covered a great part of the recent advances in our empirical knowledge of the Britain of 1870-1939. The scholarly apparatus is complete, at the bottom of each page, and the book will doubtless find a wide use.

J. R. T. HUGHES

Purdue University

Statistical Methods; Econometrics; Social Accounting

Government Price Statistics: Part I, Hearings before the Subcommittee on Economic Statistics, Joint Economic Committee, 87th Congress, 1st Session. Washington: Supt. Docs., 1961. Pp. 526. \$1.50. Report of the Subcommittee to the Joint Economic Committee, 87th Congress, 1st Session. Washington: Supt. Docs., 1961. Pp. 13. 10¢.

Commissioned by the Bureau of the Budget and prepared by the National Bureau of Economic Research, the major volume listed above contains the report of the Price Statistics Review Committee of economists and twelve staff papers exploring specific aspects of the federal government's price statistics.

In anticipation of the overdue revision of the consumer and other price indexes which will be made in the next few years, the weaknesses and inadequacies of present indexes are discussed and recommendations for their improvement and expansion are made in this volume. While space limitations do not permit an adequate summary of the contents and findings, there are several observations and criticisms which may be made. A minor annoyance is the printing; it is unfortunate that our government cannot be a little more generous with the format of its publications. Surely a more readable print would not increase the admittedly low price very much.

Perhaps the most significant point of the study is the emphasis on and the demonstration of the difficulties involved in constructing index numbers to measure changes in complicated variables. The problems and hazards of choice of methods, materials, and categories are well described. There is some duplication in the separate papers; this is inevitable in the use of widely separated experts, but it is not excessive. Altogether, a thorough discussion of the historical, technical, and theoretical problems of index numbers is provided.

The inadequacies of government work in statistics due to limited financial

support are evidenced and leave one with the realization that the cheapest way is not always the least expensive. With the resources of our affluent society it seems incredible that private and public economic decisions must be based on data that are inadequate as a result of budgetary restrictions.

The primary problem of the price index is indicated by Congressman T. B. Curtis' queries about variety and quality measurement (pp. 7-8). R. T. Bowman of the Bureau of the Budget in his presentation of the report admitted the difficulty of making price comparisons, and pointed out that "this is the area in which the report of the committee will be subject to the greatest amount of controversial statements."

Under Chairman G. J. Stigler the Review Committee limited its survey to the consumer price index, the wholesale price index, and the indexes of prices paid and received by farmers. Their report concludes that revisions of the bases and weightings are too infrequent, and that as a result there is a "failure of price indexes to take full account of quality changes" (p. 35). This conclusion is documented and expanded by Zvi Griliches in his excellent paper on automobile improvements, and in Albert Rees' fascinating use of mail-order catalogs for price comparisons. One wonders if this latter technique might not be used to obtain a better farm price index since the importance of the mail-order house to the farm family is well known.

In addition to considering the problems of constructing adequate indexes for agricultural comparisons, the papers on the farm indexes raise questions of policy. Both G. Shepherd and E. R. Swanson give insights into the farm problem in their studies of agricultural indexing. This reviewer believes the extent of tax evasion by the farmer and the possibility of double-counting in the determination of farm costs (gasoline tax remissions, housing, etc.) should be examined with a view to gaining greater accuracy for these indexes.

Several of the staff papers seem overly technical, but this may be unavoidable since they are attempting to break new ground. The Impact of Motor Freight (W. Y. Oi, D. E. Lund, and P. P. Bestock), Seasonality Effects (V. Zarnowitz), Validity in the WPI (J. Flueck), Sampling Considerations (P. J. McCarthy), and Stability in the CPI and WPI (H. E. McAllister) are the subjects and authors of five staff papers. Congressmen and other noneconomists or statisticians may have difficulty with the papers by Zarnowitz and McAllister, but they raise technical problems that demand consideration. P. O. Steiner's "Consumer Durables" discusses "appreciation of assets," a rather untypical phenomenon compared with depreciation, and unfortunately his conclusions may be too technical for effective application. The analysis of "Special Classes of Consumers" and their different index requirements is stimulating and needed, but Eleanor Snyder ignores free goods and other low-cost alternatives for low-income groups. The importance of outpatient clinics and government surplus foods should be considered in these special indexes of living costs.

These are excellent and stimulating studies, and a careful reading of this inexpensive volume will give an understanding of index numbers, their use, and the problems of government price statistics. It should make a real contribution to the development of more adequate measuring-sticks for prices,

particularly if we want "to modify the CPI in the direction of a welfare index" as the Committee recommends (p. 55).

One disturbing matter is the treatment of taxes. R. A. Kessel's brief article is interesting but not very useful. With our CPI based on 1947-49, this reviewer can see no justification for his inquiry into real wages being based on 1929. In addition, since the objective of the CPI is to measure the purchasing power of the dollar, the inclusion of the difficult problem of determining real wages makes the task even more complicated. There is a very real problem in indexing the impact of direct taxes, but Kessel's analysis does not provide answers or a method for finding them.

Although the Review Committee recognizes the impact of taxation and government services on the price index, they recommend no changes but "much research" (pp. 54-55). In this reviewer's opinion this delay would be most unfortunate, for preliminary findings indicate these two aspects of government finance have had very significant effects on the CPI and particularly so since the 1947-49 base years. These effects must be determined and taken into consideration in revising the index if we are to avoid the continued overstatement of inflation that it presently contains. Furthermore, the goal of a welfare index cannot be achieved without this important modification of the CPI.

In its brief *Report* on the recommendations, staff papers and subsequent hearings, the Subcommittee on Economic Statistics concludes "this Nation has the best statistics in the world. We want to keep it that way." It urges expanding research by government and private agencies for "continued improvement" (p. 2). Modifications, expansions, and corrections in the various indexes which were recommended by the Review Committee are generally accepted as a means of achieving this goal. However, because of the conflicting and inconclusive discussions at the hearings, the question of a "market basket" or "welfare" index is answered by "what seems to be the practical working conclusion at this time . . . to try to measure the change in prices of a package of goods and services which consumers indicate by their performance in the marketplace gives them equivalent satisfactions." The Subcommittee then recommends more research on "the concept of trying to approximate as closely as possible the cost of a constant level of living" (pp. 11-12). Certainly this should be the objective of the CPI.

ALFRED E. PIERCE

Lafayette College

Economic Systems; Planning and Reform; Cooperation

Has Capitalism Changed? An International Symposium on the Nature of Contemporary Capitalism. Edited by SHIGETO TSURU. Tokyo: Iwanami Shoten, 1961. Pp. iv, 222. \$4.00.

Wanting to know whether capitalism has developed a sufficient immunity to depressions to survive, what its long-term prospects are, especially in the United States, and how capitalism may be gradually transformed into socialism, the editor of this volume, a Japanese economic theorist, expressed his

views in about a third of the book, secured eight other economists to react to the same issues, and rounded off with a chapter on "unsettled problems" plus an appendix entitled "Reflections on Capitalism." The symposium makes stimulating reading.

Tsuru's own thesis is that, although the institutional aspects of capitalism have changed and will continue to do so, its "essence," which is the difference between it and socialism, has not altered. The acid test is, "Who controls the surplus?" Under capitalism "surplus value" is appropriated by the capitalist class and "profit generally is destined to investment." Under socialism the surplus takes the form of a "social fund." Capitalism's weakness is that if the surplus increases more rapidly than the effective demand, there is first a glutted market and then a depression. Tsuru concludes that although it cannot be said categorically that the United States will never again have a major depression, nevertheless a number of factors, chief of which are new technologies, defense expenditures, and governmental policies and institutional stabilizers, do permit the cautious conclusion that whether "the U.S. economy will continue to prosper has still to be tested by future events" (p. 209).

Some of Tsuru's uncertainties as to the future of U.S. capitalism relate to whether the state can become a "superclass organ" working for the common interest of the common people; whether defense expenditures will increase relatively as fast as over-all production; and whether the profit incentive will continue strong enough to assure high-level production even though the state continues to redistribute wealth. If the surplus is not to be funneled into conspicuous consumption (which seems unlikely), then some way must be found to finance the social fund for schools, roads, and all the other community services which capitalism seems unable to support as readily as socialism does.

Tsuru's general theoretical conclusions regarding capitalism are that a high level of profits is essential, that most profit is destined to investment, that public policies which encroach on profitability will be stubbornly resisted by the capitalist class, and that there is a constant pressure to sell in order that profit may be realized. One of our problems, he says, is that the typical U.S. businessman "hates and fears" the organized political state (p. 81).

At the end of his essay the editor concludes (without adducing proof, however) that capitalism will finally become debilitated, will eventually draw the last curtain on itself, and that therefore the long-range problem is how to effect the transition to socialism as peacefully and as tidily as possible.

The editor's own evaluation of the success of the symposium vehicle is that only three of the eight collaborators answered his questions directly; that instead of dealing with "empirically testable" data in an "operational" fashion, most of the participants were inclined to drift off into their own theories (appropriate in their place). He did find, however, that most of the commentators agreed with some of his major positions. John Strachey and Charles O. Bettelheim (the latter writing in French) concluded, for example, that without high profits, prosperity cannot be sustained. Also, even Strachey, author of *Contemporary Capitalism*, apparently agrees that the form of the surplus distinguishes different economic systems.

Comments from other contributors are not easily telescoped. Paul M.

Sweezy remarks that there is no reason to make the Schumpeterian assumption that now or in the future "waves of innovations must necessarily be associated with waves of increased investment" (p. 84); Paul A. Baran thinks that underconsumption is worth more attention than traditionally it has received; Yakov A. Kronrod (writing in Russian) argues that political factors such as the end of colonialism as well as structural factors such as oligopoly will inevitably cause the demise of capitalism; Maurice Dobb denies that there is such a thing as a "new stage" of capitalism; and J. K. Galbraith renews his defense of countervailing power as chief guarantee that capitalism will retain its decentralized characteristics.

All of which makes interesting reading. There may be some doubt as to the legitimacy of the subtitle, "International Symposium," for most of the contributors were apparently more than half convinced before they wrote that socialism is inevitable. The editor welcomes additional commentary and, considering his sparkle and vigorous approach, a generous response would be amply justified.

MARSHALL E. DIMOCK

New York University

Problemy tsenoobrazovania i politika tsen. (Problems of Price Formation and Price Policy.) By G. CSIKOS-NAGY. Moscow: Sotsekgiz, 1960. Pp. 477.

This book is a revised edition, translated into Russian, of the 1958 treatise by the chief of communist Hungary's Office of Price Administration. The author displays both a first-hand knowledge of empirical facts (which other writers on the subject usually lack) and a theoretical perception of his complex problems. In this book he supplements his own experience in Hungary with detailed summaries of recent discussions of value theory and price systems in Poland, East Germany, Czechoslovakia, and the Soviet Union. In scope and character, the treatise is similar to that of Sh. Ya. Turetsky, reviewed in this journal in December 1960, but theoretically it attains a higher level of abstraction and insight.

From under the mountain of data and information on price formation and price policies in Hungary, a brooklet of Csikos-Nagy's own cautiously worded opinion trickles through: being a seasoned practitioner in both economics and politics, he does not take seriously the talk about the "labor law of value" as a factor in "socialist" price formation, though he pays lip-service to it on suitable occasions. Since all centralized planning and decisive decision-making is done in terms of material balances *in natura*, rather than in money, he knows, and says so, that prices do not regulate the over-all allocation of resources in his economy. The limited role of prices Csikos-Nagy sees to be only the following: (1) to serve the purposes of accounting and economic analysis; (2) to help distribute the national income (a) between consumption and capital formation, (b) among the classes of consumers, and (c) among the territories; and (3) to stimulate, in the short run, the allocation of resources on the local, decentralized, microeconomic level within the framework of the master plan.

As far as the rules of price formation are concerned, Csikos-Nagy rejects,

as unrealistic and inapplicable to a nationalized economy, both the equalization of rates of profit and marginal cost pricing. His argument against these—and, in fact, all other—rules is bluntly frank: they would curtail the government's freedom to allocate resources politically as it pleases. Of course, he does not advocate irrational behavior or an outright voluntarism on the part of the government. He warns against possible disproportions and pitfalls, and advises the use of various test formulas in finding an optimum variant for a particular decision. His point is, however, that such formulas are only tools of analysis; they are not rules and must not be accepted as, or written into, laws.

Furthermore, since government policies, demand, costs, technology, productivity and other environmental circumstances change often and rapidly, the centralized price administration is not able to respond and adjust prices quickly enough to accommodate any specific rules. The mechanization of accounting and calculation is still insufficient and backward, and the cost of price changes is high. The author insists that his office can change its "millions" of prices only once in two years, although he hopes that soon this response-lag may be cut to eight months.

Csikos-Nagy believes that the relative prices of producer goods as well as the wholesale prices of consumer goods should be fixed "in accordance with various considerations," viz., politically. Only for retail consumer-goods prices is he willing to furnish a more objective foundation. The general level of these prices is designed to equate total supply and demand so as to allocate the national income between consumption and accumulation. But in respect of individual consumer-goods prices Csikos-Nagy comes out in favor of "protecting the consumer's interests": he rejects the use of prices to equate each particular supply and demand; for otherwise, he says, short or unwanted supply is protected from demand; he proposes instead to adjust the structure and the volume of supply in accordance with demand, while holding the price level constant. This is a commendable idea, of course, if only it were put into practice.

VSEVOLOD HOLUBNYCHY

Columbia University

Business Fluctuations

Business Cycle Indicators. Edited by GEOFFREY H. MOORE. Two vols. Princeton, N.J.: Princeton University Press for National Bureau of Economic Research, 1961. Pp. xxxv, 737; xvii, 179. \$12.50, \$4.50; the set, \$15.00.

These two volumes should be looked upon as the fourth and fifth of the National Bureau series on business cycles which began in 1927 with Wesley C. Mitchell's *Business Cycles: The Problem and Its Setting*. The dominant figure in their authorship is the editor, Geoffrey Moore, who has prepared eight of the 20 chapters in the first volume as well as editorial introductions to both volumes.

This review will be confined to the first and longer volume of the pair. It is made up of 20 papers, several published previously, relating to some aspect

of the National Bureau's leading-series and diffusion-index approaches to business cycle analysis. (The second volume, more exclusively a reference work, is an annotated collection of basic data, adjusted and unadjusted, on the individual series used most widely in the National Bureau's business cycle studies.)

The fundamental first volume is in turn divided into three parts, following the editorial introduction. Part I deals with the selection and interpretation of indicators. To the practical man, it is the nub of the entire opus. Largely written by Moore himself, it includes as Chapter 7 his famous 1950 monograph on "Statistical Indicators of Cyclical Revivals and Recessions." The argument, stripped to its bare minimum, is that a number of "leading" series, singly and in combination, systematically undergo their peaks and troughs in advance of the general business cycle. The behavior of these leading series, particularly the peaks and troughs, combined with the similar leading behavior of the percentage of all "cycle-conforming" series which are rising (diffusion-index) permit the forecasting of cyclical revivals and recessions with a reasonable degree of accuracy, despite the unavoidable lags in the publication of the data themselves. Moore and his colleagues appear to have made their point, particularly since Canadian data (Ch. 10, by W. A. Beckett) confirm that for the United States. Statistical critics both here and abroad have objected to diffusion indexes, arguing that they behave like rates of change of the over-all series themselves. This argument seems to this reviewer irrelevant. What if diffusion indexes do behave like rates of change, or are related to them mathematically? Diffusion indexes are smoother, more easily computed, and most important, more reliable.

Moore has also claimed that National Bureau methods can predict the depth of a recession as well as the timing of its onset and ending (Ch. 5, "Measuring Recessions"). This claim seems at this writing to have been premature. Written during the 1957-58 recession, Moore's paper classifies that episode as considerably more severe than it now appears on the basis of historical hindsight.

The six essays of Part II, with Victor Zarnowitz their leading spirit, are of greater interest to the theorist. Moreover, few of them have been published previously. They ask the question, why do particular leading series lead the business cycle consistently, while some related series do not? (For example, why do business failure *liabilities* lead the cycle, while business failure *numbers* do not?) The series examined, in addition to those on business failures, relate to corporate profits, incorporations, orders, and the length of the work-week. In each instance a plausible explanation is developed for an observed lead. In some cases this explanation confirms the obvious, but in others, including business failures, it does more. What apparently happens in the case of failures is that a diffusion index of the proportion of firms with rising profits leads the cycle and is approximately coincidental with the liabilities series. As the proportion of reasonably large corporations with increasing profits declines, these firms find it difficult to raise capital. Moreover, the limited-liability feature of corporate charters increases the importunity of corporate creditors. Some companies are accordingly forced into failure,

with relatively large liabilities. The total number of failures, however, is dominated by small unincorporated firms which fail for "personal" reasons relatively independent of the cycle and certainly not leading it.

Part III, and especially the contributions of Julius Shiskin, is more technical and of interest primarily to statisticians and "computer-economists." It deals with adjustments to leading series designed to improve their quality, as by electronic-computer methods of removing seasonal and random fluctuations and by conversions to approximately equal cyclical amplitudes.

Save for Moore's defense of the diffusion indexes (Part I, Ch. 9), controversy is reduced to the minimum. Nothing is said of rival forecasting methods, e.g., the more ambitious econometric models of the Klein-Goldberger school. The interest of at least this reviewer would have been whetted by direct comparisons between the efficacy of these two approaches. It is nonetheless safe to forecast, by methods less refined than any combination of leading series, diffusion indexes, and econometric models, that this set of books will occupy a prominent place in the libraries of specialists on cycles and forecasting for many years to come.

M. BRONFENBRENNER

University of Minnesota

Des mouvements de longue durée Kondratieff. By GASTON IMBERT. Aix-en-Provence: La Pensée Universitaire, 1959. Pp. xii, 535. NF 45.00.

Gaston Imbert's book, originally submitted as a doctoral dissertation at the University of Aix, encompasses a broader area than Kondratieff waves. It is an attempt to document the existence of long swings in economic activity since the 14th century and to advance some tentative views as to their causes. This is accomplished mostly by presenting a vast array of statistical data and by reviewing a good deal of relevant literature. The critical examination of a host of theoretical and empirical studies leads to the extraction of a number of hypotheses fitted into a structure which remains elusive and tentative. The extensive bibliography is quite unsatisfactory.

The first part of Imbert's book reviews very briefly the literature dealing with secular trends and with various types of cycles of a duration longer than the conventional business cycle. It then reviews statistical evidence of long movements since the industrial revolution, first in the price series and then in the industrial and agricultural production series. This is supplemented by a brief discussion of some interest and income data, which is followed by a review of long movements in some series reflecting "sociological phenomena," ranging from suicide rates to strikes and business failures. The first part concludes with a review of a collection of price series to show the existence of more or less coincident long periods of rising and falling prices in the main European countries since the Middle Ages.

In the second part, various theories on long swings in prices and in economic activity, neatly classified by schools (with quite a number of puzzling and questionable labels) are reviewed, with Kondratieff and Schumpeter sharing the limelight with authors of obscure dissertations and long-forgotten casual articles.

It is only in the last half of Part III that the endless procession of names and quotations and the welter of footnotes vanish and the author's own contribution begins to emerge. He is concerned with a broad panorama of long swings in economic life since the late Middle Ages. The discussion switches back and forth between secular trends and long cycles, with a disconcerting lack of analytical precision. Four broad periods (or "trends," to use the author's terminology) are distinguished and contributory causes which may explain the alteration of periods of expansion and contraction are discussed. For the two precapitalist periods (the "medieval trend," 1250-1510, and the "mercantilist trend," 1510 to 1720/40), it is suggested that long-term price swings can be explained by demographic factors and by wars.

The capitalist period, which contains four Kondratieff's between 1787 and 1933, is linked to the mercantilist period, in an unexplained way, by the first "precapitalist Kondratieff." Borrowing heavily from Schumpeter and Ciriacy-Wantrup, and introducing the acceleration principle, Imbert presents his explanation of Kondratieff's in the capitalist period in terms of an interplay of wars and innovations. A postwar contraction is followed by a stabilizing trough. The revival gets underway under the impact of innovations, followed by a wartime expansion which, in turn, generates a period of expansion based on reconstruction; gold production and changes in agricultural output are additional explanatory factors.

A very sketchy concluding chapter deals with the "planist trend," ushered in by the Great Depression and the growing participation of government in economic affairs. After approvingly quoting Schumpeter's pessimistic views as to the chances for survival of capitalism, Imbert offers his thoughts on proper policies designed to offset forces which generate long-term swings under the new conditions. One of the more original suggestions is that the high-wage policies of American labor unions might now perform the function which Schumpeter assigns to depressions—to lay the groundwork for a new wave of innovations by eliminating marginal enterprises.

In a laudable effort to cover all pertinent European and U.S. literature, the author ranges from Ricardo to Hansen. Yet contemporary literature on economic development and growth is disregarded, as is the entire contribution of econometrics. Judging from the one area with which this reviewer is particularly familiar, the author's attempt to solve language problems by quoting from secondary sources is somewhat less than successful.

In spite of the large number of charts and tables, supplemented by an appendix giving the equations for all fitted trends, Imbert makes no original contribution to empirical knowledge or to statistical analysis of economic change. His statistical analysis does not go beyond fitting trend curves or computing deviations from moving averages. A whole generation's progress in the statistical analysis of economic data has been bypassed by the author.

Imbert's study somehow reminds one of Kondratieff's own use of statistics and historical facts. Undue reliance is placed on long-term statistical series without proper inquiry into their make-up and significance. A wide range of political and social developments is referred to without ever providing a rigorous demonstration of the process through which they are supposed to origi-

nate wave-like movements. The statistical data are drawn from publications ranging from the well-known investigations sponsored by the International Scientific Committee on Price History to special studies of a fragmentary character and, even more frequently, from secondary sources. The unevenness of the underlying statistical material is witnessed by the fact that both U.S. wage series used (one being that for female textile workers in Massachusetts) are taken from two Belgian studies. The general nature of analysis is illustrated by the following conclusion concerning price data pertaining to medieval France:

Prices rising or at high plateau	64 war years	43 peace years
Prices falling or at low plateau	40 war years	77 peace years

These figures demonstrate well the correlation between long-term price rises and wars and long-run price declines and peace. (p. 397)

In spite of its articulation into almost two hundred subsections, Imbert's study is loosely organized and diffuse. Historical and statistical material is not firmly integrated with the analytical material which ranges from a tedious recital of who said what and was challenged by whom to tantalizing hypotheses not clearly stated or tested.

The American reader will find in G. Marcy's lucid five-page introduction a quite satisfactory summary of the scope and focus of Imbert's study.

GEORGE GARVY

Federal Reserve Bank of New York

Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

1960 Survey of Consumer Finances. Ann Arbor: Survey Research Center, University of Michigan, 1961. Pp. xxii, 310. \$7.50.

This important volume brings together in compact and usable form a large number of significant facts concerning the financial affairs of U.S. households. Surveys of consumer finances have been conducted annually since 1946 by the Survey Research Center of the University of Michigan. This group of social scientists first planned an extensive study of consumer finance while serving with the U.S. Department of Agriculture in 1944. After leaving the federal government the group continued the studies and with the aid of the Board of the Governors of the Federal Reserve System has published the more important findings each year in various monthly issues of the *Federal Reserve Bulletin*, the last figures appearing in 1959.

The purpose of these surveys is to promote an understanding of human behavior and hence of the U.S. economy by obtaining previously unavailable statistical data through personal interviews with a representative sample of consumers. Primary emphasis is given to presenting time trends of changes in magnitude and distribution of consumer income and assets, and to studying economic attitudes of consumers. The aim of the book is to furnish as much raw data as possible. Interpretative analysis and discussion of theoretical methods are kept to a minimum.

The book has three parts. The first and largest part is devoted to the presentation of consumer financial data. The second part is concerned with consumer attitudes and inclinations to buy, and the third is a methodological appendix. Tables of numerical data dominate the book. Each chapter opens with a descriptive statement explaining exactly what the tables contain, how they were prepared, what they mean, and how they can be used.

The first eight chapters present for households and spending units figures on income, employment, purchases of durable goods, housing, liquid asset holdings, life insurance, common stock holdings, distribution of assets, and installment and other debt. These data are classified and assembled for comparative purposes in several ways. The general classifications by size of income, life-cycle group, employment status, occupation, and educational experience are used most frequently. Some data are classified by income quintile groups; and geographic distribution is occasionally shown. Historical trends are developed by frequent comparison of the 1959 figures with those from earlier surveys.

The next five chapters are concerned with consumer attitudes toward economic conditions and with expectations of acquiring durable goods and other assets in the future. In the attempt to measure optimism and confidence, information is collected on planned expenditures, due attention being given to the individual's willingness to buy, as distinguished from his ability to buy. Consumers are asked to express their opinions on future political and business changes and on probable future prices of consumer goods; and also their feelings about their own future financial position. From these responses the Research Center constructs an index of consumer attitudes, which shows by "better," "worse," or "no change," the varying degrees of confidence in the future. Using the same material, forecasts of consumer demand are made and some monthly outlook estimates are tabulated. An interesting appendix to this section tells about reinterviewing respondents by telephone between annual surveys.

In the remaining four chapters a frank discussion of the *modus operandi* of the Research Center adds greatly to the value and authenticity of the figures. Method of selecting the sample, the training of interviewers and actual processes of interviewing are all carefully explained, together with a discussion of the analytical and statistical techniques used in handling and working up the data. A glossary defines specific terminology. The problems of sampling error and reliability of data are discussed in connection with the tendency of respondents to give inaccurate or no answers to questions concerning amounts of income and purchases and other dollar valuations. Inclusion of the actual questionnaires showing exact wording of the questions asked by the interviewers is most helpful to users of these statistics, particularly of the data reflecting consumer attitudes. The book closes with a comprehensive bibliography of published and unpublished papers and monographs by members of the Research Center and others who have used the material of these surveys. In addition are listed some studies based upon other sources of consumer financial information.

The research the results of which are presented here is of a high order. An

attractive feature of the book is the tabular format which makes the tables unusually easy to consult and understand. Complicated development of statistical formulas and computations is largely avoided but where necessary the explanations are given in simple terms. The detailed findings are of considerable theoretical and practical value to all students of consumer demand and to persons engaged in market research, as well as to policy-makers in both business and government. The thoughtful consumer who is interested in budgeting and in evaluating his own financial status will find much in the way of guidance and assurance in the information herein presented.

JANET L. WESTON

University of Illinois

Investment Portfolio Management in the Commercial Bank. By ROGER A. LYON. New Brunswick: Rutgers University Press, 1960. Pp. xiv, 210. \$4.50.

Lyon attempts to delineate the type of flexible investment policy a commercial bank should follow in a relatively free bond market. By "flexible," he means that maturities should be lengthened and the quality reduced as interest rates rise, and vice versa when yields decline. He argues that such a policy is preferable to either the random selection of maturities and risks or the maintenance of a given structure of maturities and qualities (although maturities are systematically spaced and only the highest grade issues are held). A flexible (optimum) policy would meet the bank's liquidity needs and maximize investment income, consistent with the amount of capital owned.

Lyon's success is uneven. In Chapter 1, he shows succinctly that the bank's investments represent primarily the employment of funds remaining after the provision of adequate liquidity to support demand deposits and the extension of acceptable loans. The nature and significance of liquidity is discussed in Chapter 2, and the interrelations among liquidity, maturity and marketability of an asset are examined. This is perhaps the most useful exercise in the book, and the general reader could study it with profit. Chapter 3 is essentially a digression on the place of bank capital in investment decisions. The adequacy of capital is undoubtedly a paramount consideration in bank operations, but its relation to the management of the investment portfolio (as distinct from loans) is ambiguous. Lyon's review of the so-called risk ratios developed by the Federal Reserve System contributes little to clarify the link.

The discussion in Chapter 4 focuses on the importance of the yield curve and tax-exempt income to the commercial bank. Lyon attempts to show the superiority of his flexible investment policy over several alternatives. He draws heavily on both hypothetical and actual statistics (grouped in several appendices), but the outcome is disappointing. He criticizes the alternative of spaced maturities without comparing the income results of this type of portfolio policy with those of the policy which he advocates. Moreover, it is difficult to evaluate his argument supporting a flexible policy even aside from the absence of such a comparison. His analysis rests on data (in Appendix 4) showing actual net realized returns on funds (whose ownership is not indi-

cated) invested in various types of U.S. government securities over three periods of rising interest rates: March 8, 1951-June 4, 1953; June 24, 1954-November 15, 1957, and June 30, 1958-December 31, 1959. He concludes that "... in all three periods, ... net realized return ... declined as maturity was extended and net losses ... were actually showing in the longer maturities in the last period. ... The lesser income ... from ... a short position in ... a deteriorating market [was] more than warranted by the avoidance of market vulnerability ..." (pp. 79-80).

This conclusion, however, should not be readily accepted. While market vulnerability obviously increases as prices decline, it should be noted that virtually all of the bond sales listed which resulted in net capital losses occurred in the neighborhood of federal income tax dates. As Lyon himself mentions subsequently (p. 161), a bank may sell bonds quoted at a discount to offset a part of its profits on loans. Such action may be taken independently of the phase of the cycle in interest rates, so it is impossible to separate tax-induced losses from those due to involuntary sales in a deteriorating market. Consequently, the performance of Lyon's flexible portfolio policy remains to be tested. On the other hand, his emphasis on the importance of the yield curve in portfolio management is well placed; this is also true of his advice to banks with small incomes (subject to the 30 per cent federal corporate income tax rate) to avoid excessive holdings of high-priced tax-exempt securities.

Chapter 5 is the weakest in the book. It is simply a review of monetary and debt management policies since 1951, although the author set out to demonstrate the influence of such policies on portfolio composition. Given his strategic position in the investment department of the Chase Manhattan Bank in New York, he could have greatly illuminated the behavior of commercial banks if he had drawn on his experience (though not necessarily by describing the actual behavior of his own institution) to relate these general market developments to patterns of portfolio shifts of which he undoubtedly has considerable knowledge.

Finally, after briefly describing the types of financial assets available to meet the quality and maturity requirements specified in preceding chapters, Lyon uses most of Chapter 6 to show how a flexible portfolio policy should be executed during periods of fluctuating business activity similar to those experienced between 1951 and 1959. His central argument seems intuitively correct, but as already mentioned he fails to support it with the evidence presented.

Despite the limitations of the study when judged by the standards of professional economic research, the author has contributed a useful introduction to portfolio management in the commercial bank. The brief glossary of money-market language should be especially helpful. But for the informed reader, the book falls far short of being a supplement to the widely-used *The Management of Bank Funds* which Roland Robinson published ten years ago.

ANDREW F. BRIMMER

University of Pennsylvania

Money and Banking. By C. LOWELL HARRISS. Boston: Allyn and Bacon, 1961. Pp. xiii, 556. \$7.50.

This text is intended for a basic, one-semester, course in money and banking. It deals with "... practice, theory, and policy ..." (p. vii). Its twenty-five chapters are divided into five parts: Money; Commercial Banking; Monetary Theory; International Financial Relations; and Monetary Policy. In addition, Appendix A covers "Monetary Development: Highlights in United States Experience" in 22 pages, and Appendix B treats "Index Numbers" in 5 pages. A brief, 4-page bibliography completes the work.

One feature of this book may appeal to some teachers: it relegates to an appendix all but the most recent U.S. monetary and banking history. Its treatment here is of the "highlight" variety. Teachers who find the perspective of history useful in explaining existing institutions will need more material than that included here.

The introduction of the subject of the multiple expansion of bank credit in the second chapter confronts the students early in the course with the unique feature of commercial banking. Unfortunately most of the material in Chapters 3 through 12 fails to carry the reader on to an understanding of the economic implications of money creation. Rather, an array of operating information is presented, more than is necessary to an understanding of the economic processes but not enough to serve as a manual for management. Much of the material is loosely hung together. The treatment of bank failures, for example, recognizes the existence of the F.D.I.C. almost as an afterthought.

The theory and policy sections of the book reveal certain predilections. The quantity approach to the theory of money is more appealing to the author than the income-expenditure approach. Thus: "Sometimes the old takes on new interest, not because of the fickleness of fashion but because the old seems to have merits not found in younger rivals" (p. 215). This introduction to the quantity theory discussion is in contrast to the following found at the beginning of the chapters dealing with the national income approach: "The dust stirred up by the controversy [over Keynes' approach] has not all settled. It still clouds some views" (p. 271). Apparently the "cloud" which catches the author's eye the most relates to the consumption function. Thus: "The consumption function is more complex than Keynes realized" (p. 279), and: "The consumption function varies considerably more than Keynes believed probable" (p. 281). Later on, the discussion of the multiplier is summarily dropped because "what actually happens" is hard to measure. This reviewer thinks that beginning students can and should be fed better fare than the details of Keynes' shortcomings.

The discussion of the objectives of monetary policy, like many other sections of the book, is clouded with doubt and hesitation because of the unmeasurables and imponderables of economic life. Harriss thinks that the difficulties in defining unemployment of manpower must lead to paralyzing doubt as to proper policy (p. 399). However, in a positive vein he asserts that "... there is more undesired idleness of nonhuman productive capacity than

is consistent with public welfare." How to measure such idleness and how to reduce it are not made clear.

The author is not quite sure what the central banker should or can do. Harriss is convinced that the banker must be a man with "deep knowledge, broad acquaintance with the economy, and mature judgment," all acquired before becoming a central banker (p. 442). If he then consults with the right people and resists public pressures he will be in a position to act. The author apparently would want him to rely on his "mature judgment" rather than on any guidelines to be found in this text.

Fiscal policy is introduced on a more positive note than that with which monetary policy is dropped. The end of the chapter, however, finds a page of questions and doubts: "... there is little consensus on the fiscal changes which would best serve long-run needs. Among the biggest doubts are those about the power of monetary policy" (p. 478).

All who are competent to teach money and banking would agree that the issues in the field are not clearly defined and that proper monetary policy cannot be discovered by merely reading the right book. Yet, there is much doctrine on which there is general agreement. The implications of conflicting theories can be presented with recognition of differences in their underlying assumptions. The analytical processes for evaluating the unknown areas can be explained to students. The author of this text apparently desires to teach the students what is not known rather than what is known.

ERIC W. LAWSON

Syracuse University

Public Finance; Fiscal Policy

Development from Below: Local Government and Finance in Developing Countries of the Commonwealth. By URSULA K. HICKS. New York and London: Oxford University Press, 1960. Pp. xiii, 549. \$5.60.

The potentialities of "development from below"—a clarion phrase coined by Prime Minister Nehru—are too often slighted in the literature of economic development. As a consequence, economists are not at all equipped to resist a natural tendency in many countries to assign a disproportionate share of development efforts to general policies and large undertakings, which of necessity must be centrally directed. The inclusion of many small projects carried out by local governments, especially those in a rural setting, has definite advantages: such projects can often bring quick results and can be financed out of revenue sources difficult for central administrations to tap. Moreover, a democratic system of local government has long been regarded, and appropriately so, as an effective way of promoting a country's political development. For these different reasons, therefore, this new contribution by Mrs. Hicks, in a field which few other economists are particularly qualified to investigate, fills an important need.

The book's success is partly due to the fact, as Mrs. Hicks explains, that it is in a very real sense a cooperative product, in which her collaborators were local government finance officers from British overseas territories who

came to Oxford for advanced training. Even more important, however, is that her own detailed knowledge of local government in the United Kingdom and overseas enabled her to amplify and interpret the practical experience of these officers. The result is an exciting story of the building-up of local governments in the former colonial territories as a preparation for their independence. The story's full significance is enhanced by Mrs. Hicks' detailed descriptions of British local institutions and how they were emulated in some of the overseas territories.

The book starts by describing the new policy communicated to African governors in 1947 by the Secretary of State for the Colonies. Thereafter, efficient local government was to be encouraged not only as a means to political development but also for its important contribution to social and economic advancement. The next chapters present a preliminary survey of local government institutions in the different territories and an explanation of the subtle combination of local responsibility and central control in the system of local government in the United Kingdom. Next come a series of chapters on the detailed history of local government institutions in the West Indies, India, Ceylon, and various territories in East and West Africa. One of the conclusions of this historical review is that the emergence or prospect of political independence does not substantially alter the course that had been set by the British administrators for the development of representative and responsible local government institutions. Also, the new governments continue to regard the strengthening of local government finance as essential.

The main body of the book is devoted to a comparative examination of local authorities' financial accounts, which comprise the best source of information on what the authorities actually do. This examination, which is supplemented by frequent glances at relevant experience in the United Kingdom, covers current expenditures, for which a simple functional breakdown is used, the sources of current revenue, with separate attention to rural and urban areas, the capital account, and grants from central governments for current and capital purposes. The book's concluding section considers general problems of central-local relationships—financial, administrative, and political—and the more specialized problems of rural and urban governments.

Though rich in factual detail and a substantial contribution on that score alone, the book is also of value for its carefully reasoned conclusions on some perennial policy questions. With respect to the most appropriate basis for a local tax on urban realty, Mrs. Hicks stresses the advantages of capital value over annual value, particularly in a developing country. Under rural conditions, however, she eschews a tax based on land value in favor of a personal tax assessed presumptively according to the individual's or family's potential net income. In her examination of grants-in-aid, which she expects will grow in importance, Mrs. Hicks raises objections to the aim of interlocal income redistribution in the developing countries, partly on the ground that development opportunities are more likely to present themselves in the richer than in the poorer areas. She endorses both block grants and specific grants, provided they are fitted into a coherent plan. Throughout these policy-oriented discussions Mrs. Hicks skillfully applies the economist's viewpoint

to the complex problems of infant local governments in different institutional settings without, however, shortchanging the political and administrative aspects.

HASKELL P. WALD

Federal Reserve Bank of New York

Federal Tax Reform. By DAN THROOP SMITH. New York: McGraw-Hill Book Co., 1961. Pp. v, 328. \$7.00.

Highly significant issues involved in federal tax policy are treated in this volume. The current revenue structure is subjected to detailed analysis in a manner largely nontechnical in nature. Many recommendations for changes in the tax system are presented. These are based on the assumption that a general tax reduction is not in the offing. The suggested alterations are designed, therefore, to be "substantially self-financing" and are not proposed as means of lessening over-all tax burdens.

Only a painstaking student of taxation, steeped in both the theory and practice of government finance, could have written this volume. The author has drawn a concise word-picture of today's federal tax system, and has placed emphasis on its most vulnerable points. He has assembled a vast amount of factual information for use as background material in making policy recommendations. This has been accomplished in an orderly fashion and in a way which facilitates understanding. The common danger of becoming confused, or totally lost, as one seeks to work his way through a maze of items pertaining to federal taxation has been minimized in this study by a judicious selection of features of the tax system to be treated.

The book is devoted principally to an analysis of major federal taxes and means of improving them. An interesting introductory chapter contains a discussion of the nature of taxation and objectives of tax policy. Here the author comments on ability-to-pay, benefits-received, and sacrifice theories; on proportional and progressive tax rates; on compensatory fiscal policy; and on the mature-economy thesis as it bears on tax reform. He takes the position that the existing federal tax structure does not rate well when viewed in the light of acceptable principles; that serious and lasting damage to public morale and to prospective economic growth is likely if changes in the system are not soon forthcoming; and that taxes must be made fairer, simpler, and less repressive than they are today. Extensive reform of each major segment of the tax system is recommended, with special attention given to (1) the individual income tax, (2) depreciation, (3) capital gains and losses, (4) the corporation income tax, (5) trusts and estates, and (6) excise taxes. It is worthy of note that the recommendations do not include proposals for new taxes, unless the suggestion to substitute a single broad-based excise at the manufacturer or wholesaler level for present selective excises can be regarded as a new fiscal device.

A book on tax reform should be specific, and this one meets the requirements in this regard. In connection with the personal income tax, for example, rates, exemptions, deductions, annuities, deferred-compensation contracts, gifts, and many other issues are scrutinized with care. A broader tax base is recom-

mended. Sensible proposals for changes in methods of taxing capital gains are made and more realistic allowances for depreciation are urged. In the author's opinion, it is very important to have the depreciation provisions of the revenue code revamped at an early date.

In the treatment of the corporate income tax, some attention is directed to shifting and incidence, but no position is taken in regard to the controversy concerning the final resting place of the burden of this revenue measure. The author concludes, however, that: "Regardless of its incidence, the results of the corporation income tax are undesirable" (p. 191). If it is not shifted, it discourages savings and capital formation and stifles economic growth. If it is shifted forward to consumers, it becomes a capricious excise tax, placing burdens on buyers of goods and services in uncertain and indeterminate ways. But the corporate income tax cannot be eliminated, which makes its reform imperative. The corporate normal tax rate could be slightly reduced, it is argued, if the law were to be tightened to prevent abuses. Cooperatives should be taxed on their net retained earnings and tax benefits now accruing to cooperative financial institutions should be eliminated in the interests of justice. Provisions for depletion allowances should be revised at an early date.

In the judgment of this reviewer, insufficient attention is given in the study to possible reform measures within the area of excises. The problems inherent in consumption taxation as a means of financing government, particularly at the federal level, are treated in sketchy fashion. Fewer pages in this important work on tax reform are devoted to excises, for example, than to such topics as the taxation of estates, trusts, and foreign income. The substitution of a broad-coverage tax for selected excises, as proposed, might constitute a step toward a rapid expansion of consumption taxes. For this reason, the proposition warrants more critical treatment than it receives in these pages.

As a guide to possible changes in the federal tax structure, this book deserves a high rating. Perhaps it would have been more interesting to some readers, and more enlightening, if theoretical and philosophical aspects of taxation had been emphasized to a greater degree and less attention had been directed to certain administrative details. But the study is intended to be a treatise on tax reform rather than on tax theory. It is clearly entitled to a place of prominence in the literature on reform.

C. WARD MACY

University of Oregon

Die direkten Steuern der Kapitalgesellschaften und die Probleme der Steueranpassung in den sechs Staaten der europäischen Wirtschaftsgemeinschaft. By ALBERT J. RÄDLER. Amsterdam: Internationales Steuerelementationsbureau, 1960. Pp. 285. \$8.00.

There can be no doubt that the economic integration of Europe presupposes coordination in the tax field. Actually, this point has been sometimes overstressed. It would seem presumptuous to require unification. Mainly those differences in tax institutions that obstruct free competition should be removed; or, to employ the usual term, European tax systems should be "harmonized."

People concerned with those plans will welcome the present volume, sponsored by the Council of Europe and prepared under the supervision of Professor Ottmar Bühler of the University of Munich. They should realize, however, that it covers only one-half, if not less, of the subject. It explores possibilities of mutual adjustment of direct taxes on corporations imposed by the six member states of the European Economic Community. Therefore, as Bühler announces, a companion volume is contemplated dealing with harmonization of so-called capital transfer taxes, sales taxes and turnover taxes.

The complexity of the problems encountered by Rädler justifies a step-by-step procedure. He begins with the present structure of taxes on corporations in the six member states (Part I) and, in the following Part II, embarks on a comparative study of basic provisions of those tax laws. He then turns to the tax provisions in the international treaties that gave rise to the Benelux Customs Union, the Coal and Iron Community, and the EEC (Part III). Furthermore, he evaluates arguments in support of the plans in the light of international tax law (Part IV). Finally, he lists his conclusions and recommendations, though in too sketchy a fashion to be used as a summary (Part V).

Generally, the vast and somewhat amorphous material has been carefully handled. The author displays a flair for essentials and presents his views with succinctness and clarity. Still the wisdom of some of his points may be doubted. The author, for instance, chooses to define "double taxation" in a narrow sense. Following him, the concept should cover only those cases in which several fiscal authorities impose taxes either on the same object or the same base of taxation. Other cases of overlapping, however, should deserve a special name. If the same fiscal authority taxes the same object twice, Rädler speaks of a "double tax burden" (*Doppelbelastung*) though this concept presupposes an agreement on the final resting place of the tax. As precarious is the author's suggestion to reserve the concept of income for the earnings of an individual. Legal entities, he contends, do not earn any income. Therefore taxes on corporations are imposed either on their yield (*Ertrag*) or on profit.

Evidently, scope and methods of "harmonization" largely depend on tax shifting. In this area, however, the analysis is poor both from a theoretical and a practical angle. Obviously, the author is more concerned with the legitimacy and desirability of shifting than with intricacies of its economic process. Finally, he lapses into the old prejudice that shiftability depends primarily upon the character of a tax. In this context, at least, the distinction between *Kostensteuern* and *Gewinnsteuern* is as spurious as the Physiocratic dichotomy of "direct" and "indirect" taxes that engendered the prejudice.

FRITZ KARL MANN

The American University

International Economics

Import Liberalization and Employment. By WALTER S. SALANT and BEATRICE N. VACCARA. Washington, D.C.: The Brookings Institution, 1961. Pp. xix, 388. \$6.75.

Until recently, the claims and counterclaims concerning the effect of im-

port liberalization on domestic employment were devoid of any empirical content. It is the main purpose of the research reported in this volume (parts of which were presented earlier in professional journals) to fill this gap. For each of 72 selected industries the authors estimate the following effects of \$1 million increase in imports: (a) the direct impact on employment in the selected industry; (b) the indirect effect on employment in all other industries, traced through interindustry relations data; (c) the effect of liberalization on employment in industries connected with the process of importation, such as ocean freight and insurance; and (d) the direct and indirect effect of higher foreign incomes and dollar earnings on U.S. exports and employment. Items (a) and (b) are usually negative while (c) and (d) are positive. The four components are then combined to obtain the net short-run employment effect of trade liberalization in each industry.

How were the industries chosen? Since the 200-industry division of the economy is the smallest unit for which input-output data are available, the individual commodities in the tariff classification had to be classified into these industries. As a first step they were classified into the 551 subindustries of the four-digit SIC. Of these, 168 subindustries were selected which included commodities with significant protection and for which reliable output and employment estimates could be prepared. These subindustries belonged to 89 industries. But 17 of the latter were rejected because the industry's buying and selling relations could not be assumed to represent those of the commodities involved. For each of the remaining 72 industries an estimate was made of the effect of a \$1 million decrease in output, based on the average employment-output relationship for the industry in 1953. Thus instead of estimating the general effect of a particular liberalization program, the book deals with individual protected industries (on the assumption that a given increase in imports would cause equivalent displacement of domestic production). This procedure enhances the value of the estimates as they can subsequently be applied to any specific liberalization program.

Of the 72 industries the net decrease in employment is largest for liberalization in the case of apparel where the decrease is 175 employees, and smallest for grain mill products where there is a net increase of 5. The median net decrease is 86 employees, while the third quartile is 104. A summary of the main findings is given in Table 10.1, p. 215.

These figures must be regarded as upper limits for two reasons. First, some of the assumptions made, like the "equivalent displacement" assumption mentioned above, lead to an overstatement of the employment effect of trade liberalization. Second, the authors' attempt to examine the current validity of the estimates which are based on 1953 data, leads them to conclude that "in most cases studied liberalization undertaken in 1960 would cause smaller . . . effects on employment . . . than is indicated by the estimates of this study" (p. 236). Treated as maximum figures, the employment effects developed in this study appear almost insignificant in comparison with: (a) cyclical changes in employment, (b) employment implications of economic growth, and (c) normal turnover in the labor force (Ch. 12).

The findings rest on a large number of assumptions, the rationale for which

is clearly given at every stage of the analysis. Indeed 4 out of the 12 chapters, and 2 out of the 7 appendices are devoted to "methods and assumptions." The 40 text and appendix tables contain a wealth of statistical information. Finally, 2 chapters are concerned with the general implications of the findings.

Since the findings have a direct bearing on policy matters, it is an important feature of this pioneering work that much of it can be readily understood by the layman. Yet the analysis loses none of the rigor and precision of a professional volume. Except for an occasional tedious paragraph (such as a twelve-line sentence on p. 176) the book is well written. It would be well for one of the public organizations concerned with economic policy to print and distribute among policy and law makers a condensed version of its principal findings and their significance.

MORDECHAI E. KREININ

Michigan State University

Los pagos internacionales y la política monetaria. By ARTHUR W. MARGET and ROBERT TRIFFIN. Mexico: Centro de Estudios Monetarios Latino-americanos, 1959. Pp. 175. 25 pesos.

This book presents a series of eight lectures on International Payments and Monetary Policy by two U.S. economists, both of whom are authorities in that field and have been in government service. These papers were delivered at the annual conference of the Program of Technical Education convened by the Center of Latin American Monetary Studies (CEMLA) of Mexico in 1956.

Convertibility, the experiences of West European countries, and the essential aspects of the framework of international payments are examined and analyzed, with a view to the application of adequate fiscal and monetary policies in promoting and directing the financial and economic development of the various countries of Latin America. Arthur W. Marget of the Board of Governors of the Federal Reserve System has three papers in this book on Latin America and Convertibility. He relates his treatment of convertibility to the problems of development in the countries of Latin America. Robert Triffin of Yale University, in four papers, discusses the various monetary policies in the postwar period which led to the world dollar shortage, and points out the importance of his observations for the countries of Latin America.

The timeliness and significance of these studies have impelled the Executive Council of CEMLA to have the papers of the conference published, "to fulfill one of its essential objectives: the diffusion of ideas among the Latin American public interested in the study of the most important economic and financial problems in the modern world" and thereby help in furthering the amelioration of the Latin American economy.

Faced with an urgency for economic development and the application of practical monetary policies, Latin Americans are told by Marget in the first lecture that convertibility should be of primary concern to them. He demonstrates the aim of economic policy in developed as well as in underdeveloped lands to be the continued raising of the living standards of the masses. Coun-

tries that have traveled along the road of convertibility have reached the main highway of economic progress bringing improved living conditions to greater numbers of their population. That multilateral trade has its advantages over bilateral trade and how its contributions favor the well-being of the people is explained. Convertibility is possible for these countries and it is desirable to adopt adequate fiscal and monetary policies such as will lead them to this goal.

In the second lecture, Marget shows how European countries have arrived at convertibility through following appropriate internal monetary policies and how Latin American countries could profit from this experience. The risks inherent in such policies are exaggerated by the enemies of convertibility. He invites Latin American countries to examine the possibilities of application of such a policy to the task of economic rehabilitation. In the third lecture, he dwells in greater detail upon the possibilities of applying this European experience and the relationship between monetary policies and convertibility. The widening of the zone of convertible currencies promotes international investment of capital. All countries, great and small, possessing economic understanding and responsibility coupled with political resolution, can raise the economic standards of their population. The author sees Latin America approaching this end through international economic cooperation.

For the first paper Triffin used the material he incorporated into the first chapter of his book, *Europe and the Money Muddle* (New Haven 1957) which was published a year after his CEMLA lecture. He takes some economists to task for creating new theories to explain temporary economic situations. This paper is devoted to an examination and analysis of the world dollar shortage, its history, conflicting theories, and U.S. and foreign policies. The mechanism of the balance of payments and types of exchange is the subject of Triffin's second paper. He explains how the growth of production and the capacity to export of foreign countries has led to an increase in U.S. imports. Other countries in turn were favorably affected by this greater economic activity. U.S. capital investment accelerated foreign economic development.

The third chapter by this author is called "National and International Monetary Policy during the Century." The policies making for monetary equilibrium are touched upon, and regional and international coordination are brought into focus. The convenience of multilateral agreements is developed. The fourth paper by Triffin originally appeared in the Swiss journal *Kyklos* (1958, 11, 405-18) as a review of the book, *The World Dollar Problem*, by Donald MacDougall (London 1957). Triffin states that the great expansion in the use of international facilities for credit, such as that available through the International Monetary Fund and the European Payments Union has been most fruitful in promoting international convertibility.

Those of us who have been following Latin American developments have seen some of the recommendations in this book actually being implemented on a continental as well as regional basis. The Inter-American Development Bank and the Central American Economic Integration Bank have both been organized to promote economic growth within Latin America. Governments

and central banks in Latin America are applying orthodox monetary and fiscal policies. President Kennedy's *Alianza Para Progreso* is another manifestation of the new climate for economic advance in all the countries of Latin America.

OSCAR HERSCHMAN

New York, N.Y.

Europe at Sixes and Sevens—The Common Market, the Free Trade Association and the United States. By EMILE BENOIT. New York: Columbia University Press, 1961. Pp. xxi, 275. \$5.00.

This book tackles a considerable task. It gives some analysis, some description and some views regarding a wide range of current international economic problems. It describes the European Common Market, the associated communities, and the European Free Trade Association both in institutional terms and by reference to economic magnitudes, and analyzes the difficulties which have occurred in developments to date. The author then proceeds to a lengthy discussion of U.S. balance-of-payments problems, particularly the question of the competitive position of U.S. exports in European and overseas markets and the prospects for U.S. investment inside of the Common Market. There is a concluding chapter on the political and philosophical aspects of European integration and its effects on the United States and underdeveloped countries.

A book such as this has both advantages and disadvantages. At times, particularly when discussing U.S. investment in Europe, it reads like a handbook for U.S. businessmen, and it no doubt collects together useful information not easily available elsewhere. Moreover, it states a number of positions, e.g., the wastefulness of less than full employment in the United States, the harmful political effects of slow growth rates in the western world, and the overwhelming effects of deteriorating terms of trade on underdeveloped countries during the last few years which, I would guess, most economists would agree need constant repetition. On the other hand, the book is already dated, as is inevitable in an area where changes are occurring rapidly and where the United Kingdom has finally made a quite abrupt change in policy by applying for membership in the Common Market. Also on the negative side, the author has a number of judgments—e.g., when referring to European integration he says: "This is, after all, the first significant western innovation in statecraft since the nineteenth century unification of Germany and Italy"—which seem, at the least, to require considerably more justification than they receive.

The book is most useful when it is focusing attention on current problems. The U.S. balance-of-payments problem poses policy questions which are difficult to answer. Certainly the facile solution of reducing government expenditures abroad does not seem meritorious. To exhort U.S. business to be more competitive or to urge a slower rate of increase in costs does not seem likely to be very effective. Benoit, while arguing that the effects of the Common Market on U.S. exports can easily be overestimated, devotes considerable space to the advantages of investing in western Europe to take advantage of the markets created by the free trade area. Much of this is based upon his very useful analysis of the deteriorating competitive position of U.S. exports

of manufactures. Perhaps foreign investment to build up an inflow of investment servicing is the fundamental solution of the U.S. balance of payments in the long run. Certainly manipulation of interest rates, deflationary policies, or changes in the value of the U.S. dollar seem to have few attractions. The payments crisis of the last quarter of 1960 has apparently had little impact on U.S. policy unless significance is attached to the reduction of duty-free allowances for returning tourists and some tightening up on U.S. procurement abroad, especially by the armed forces.

Benoit is obviously an enthusiast regarding the Common Market. Much of this enthusiasm is based on the political consideration that the western world must become stronger and more united and that economic integration in western Europe is a first step in this direction. A good deal of it is based, however, on the rapid growth in France, Germany and Italy during the last few years, and the hope that integration and faster growth rates will produce fundamental changes in the economic environment which will leave more room for individual enterprise and mobility among social classes. With the United Kingdom now applying for membership, it can only be hoped that Benoit is right and that the removal of internal barriers to trade will stimulate growth and reduce social and economic rigidities. If this should occur at the same time that full employment was achieved in the United States, the western world could at least argue that it was providing a reasonable environment to encourage the growth of underdeveloped countries.

W. JOHN R. WOODLEY

Caracas, Venezuela

Business Organization; Managerial Economics; Marketing; Accounting

Direct Costing und Programmplanung. By HANS-HERMANN BÖHM and FRIEDRICH WILLE. Munich: Verlag Moderne Industrie, 1960. Pp. 141. DM 16.80.

This booklet, by and for practitioners of cost accounting (and accordingly almost wholly unencumbered by a scholarly footnote apparatus), attacks the perennial problem of appropriate overhead apportionment in industrial enterprises.

First, the rationale—or the lack thereof—of full-cost apportionments is dealt with cogently. Second, the authors argue very ably in favor of *Standardgrenzkosten* as the (locally defined!) costing criterion, i.e., marginal costs in the output interval in which these are “theoretically and practically” constant. Their argument, in language that cost accountants understand, is no doubt most heartening to those who have wisely retained and defended their marginalist convictions against the recurrent Hall-Hitch heresy. But then, third, the direct costing or *Standardgrenzkosten* criterion has limitations, too, and Böhm and Wille point them out in detail. Roughly speaking, these limitations appear whenever one bounces against capacity ceilings. The appraisal of marginal *utilities* then becomes more important than that of marginal costs. This is where mathematical programming, linear and nonlinear, comes in.

Unfortunately, such techniques are dealt with rather sketchily; we are referred to the literature.

The authors' three-stage development is headed in a direction that economists must warmly applaud. The total effect is perhaps strengthened rather than weakened by the authors' exclusive, and somewhat prolix, use of German cost-accounting parlance when, with a little symbolism, the material could easily have been compressed to journal-article length.

While endorsing and liking the whole, one could naturally find fault with details. For one thing, it would appear in the light of, say, Meyer and Kraft's work (*Am. Econ. Rev.*, May 1961, pp. 313-34) that the authors do not do full justice to the possibilities of statistical costing techniques (pp. 25-26). For another, the enjoyable fairness with which they compare different costing procedures is slightly marred by insufficient emphasis on the fact that different criteria entail different informational requirements. On pages 56 to 59, Böhm and Wille come close to echoing Chamberlin's argument (*Econ. Jour.*, June 1952, pp. 318-25) to the effect that "the full cost principle [is] one phase—and I think a very important one—of monopolistic competition theory," viz., that the principle may be advocated for lack of strategic information.

Needless to say, pricing by mathematical programming cannot be shielded from the informational facts of life, either. This circumstance perhaps goes a long way toward explaining why, at the last annual meeting of our Association, the pertinent contributions were still entirely about the controversy over full-cost versus marginal-cost pricing—and marked by the absence of even ceremonial references to mathematical programming.

EBERHARD M. FELS

University of Pittsburgh

Managerial and Industrial Economics. By JOHN A. SHUBIN. New York: Ronald Press, 1961. Pp. vii, 518. \$7.50.

This textbook is divided into four main parts: economic development, the industry, the firm, and forecasting and long-term business planning. The author does his best writing in the first part (two chapters), where he presents a clear, concise, facile background of the elements and processes of economic growth and structural change.

In Part II the author begins to get wordy and to lose the thread of his basic four-part organizational structure. Chapter 4 begins and ends well, but the bulk of the chapter is given to extended excursions into matters dealing with the *firm*. The material includes short-run cost determinants, break-even analysis, optimum size plant, optimum output, joint products and joint costs. In the course of the presentation, the author constantly shifts his base from industry to firm and back again, often with no transition or tie-in. It would be reasonable, of course, to combine both industry and firm analysis under specific topical headings, but this is inconsistent with the author's basic structure of the book. Because of this organizational weakness, there is considerable unnecessary repetition throughout the work, while the coverage at any one point frequently is inadequate or incomplete.

One gains from Chapter 4 the impression that it may have been done hurriedly—e.g., “Most industries adjust the rate of output . . .” (p. 155). It is of course the *firm* that adjusts its rate of output, not the industry—barring collusion, which is not mentioned. In this same chapter, the author discusses “decentralized managerial organization,” the functions of operating managers as compared with those of top executives, and economies of scale for the firm through the use of managerial and business specialists. All of this is done under the general heading of the *industry*, but distinctly from the viewpoint of the *firm*.

The 80-page fourth chapter also includes discussion of industry growth trends and the rationalization of industry. This is well done, but because of the jumbled organization of the chapter it appears to be peripheral rather than preferably central to a discussion of the industry.

Chapter 5 provides a good, standard treatment of the various types and degrees of competition. One might suppose that the student should have had this exposure in an earlier principles course. Following this, the author again digresses on pricing policies of the firm while still purportedly concentrating on the industry.

The *firm* comes into its own in Part III, where the author does a considerably better job of making his content conform to the part heading. However, the purpose of his earlier diversions becomes even more difficult to understand when one encounters (on p. 244): “Since the firm is a producing unit in an industry, the economic analysis of business enterprise is an extension of the study of an industry.” This may be true, but in his previous handling of “an industry” the author so markedly emphasized the firm that there is really no evident transition or extension from the general to the specific. Rather, there is a disjointed continuum from the specific to more of the same.

The discussion in Chapter 7 of scale economies in multiplant integration is a good, tight piece of work. The presentation of break-even analysis in this chapter is far better than the earlier one in Chapter 4, where, for instance, in one chart (p. 142) a supplemental profit-loss curve is inaccurately derived from the total cost-total revenue curves.

Part IV opens with a very adequate highlighting of elements in the business environment (risk and uncertainty, labor unions, taxation, etc.). However, in Chapter 10 the author again evidences confusion in the organization of his content by slipping into short-term analysis which might better have been in or adjacent to Chapter 8. Moreover, references to short-term forecasting of government expenditures and of personal consumption expenditures are not tied in with how or why these projections would be of use to economists or managers.

It is disappointing to discover in Chapter 11 that the discussion of the “process of long-range planning and decision making” is cut short even before the author covers all of the steps that he has enumerated. This is the point at which “managerial and industrial economics” might have been brought into sharp focus. It isn’t.

The final chapter is even more disappointing, for it deals primarily with management strategy and processes rather than with applications of economic

analysis, despite the chapter title of "Long-Range Program and Policies." The coverage here is very similar in content and level to that found in many introductory management textbooks. Even if the author considered this material vital to his total presentation, it appears misplaced as the concluding chapter in a text on managerial and industrial *economics*.

From the preface one would conclude that this book is intended to prepare an executive manager or an economic analyst to conduct "an economic analysis of an industry and a firm." It falls short of this goal partly because the organization of content is difficult to reconcile systematically, and partly because the author is inclined to make sequential statements which are generally quite correct but which more often than not omit the "why" that an avowedly analytical approach ought to include.

DONALD J. HART

University of Florida

Industrial Organization; Government and Business; Industry Studies

Ownership, Control and Success of Large Companies: An Analysis of English Industrial Structure and Policy, 1936-1951. By P. SARGANT FLORENCE. Chicago: Quadrangle Books; London: Sweet & Maxwell Ltd., 1961. Pp. xiv, 279. \$12.50.

This study of modern English joint stock companies is similar to the 1932 survey of U.S. corporations by Berle and Means. There are, however, important differences. Professor Florence's report is less legalistic and theoretical, more statistical and institutional. It puts less emphasis upon the statement of conclusions, more upon the evidence and the processes by which they were reached. Its tone is less incisive but more objective.

The 1,700 companies represented in Florence's research account for 40 per cent of the business done by all English firms in private enterprise. In addition, he argues, it is in the public interest to measure large companies' (a) control concentration because such companies may be the means of monopolizing industry, (b) earnings retention because their saving is the main source of private capital formation, and (c) investment success because, under continuing inflation, investment in their shares is one of few remaining means of *real* security open to the ordinary citizen.

This line of reasoning is clear enough, but his approach to the measurement of some of these things is not the most direct or enlightening. The limitations of his survey were largely inherent in the data available to him. He selected, as subjects for his inquiry, those joint stock companies registered in the commercial and industrial sections of the English Company Registry Office which had issued share capital of £200,000 in 1951. Nationalized industries (domestic transportation, communication, public utilities, coal mining, iron and steel) were of course disregarded. Omission of certain other industrial categories (e.g., sea transport, finance, insurance), however, left a noticeable gap which is not so easily justified.

Collection of data was completed in 1954 and a decision taken to begin

the study with 1936 because data for earlier years were inadequate, and to end it with 1951 because share prices in that year were in about the same phase of the cycle as they had been in 1936. The companies were classified into three groups according to size of issued share capital. All 98 companies in the largest size group were subjected to complete analysis; the other groups were sampled and the companies in the samples subjected to partial analysis.

The variety of means and circumstances tending to concentrate control—gearing (i.e., leverage) in the capitalization, concentration of personal ownership of voting shares, shareholding by institutional investors and holding companies, interlocking of directors and of large shareholders—is of course considerable. Their measurement and interpretation are too complex for description in a brief review, but certain key conclusions require mention. Concentration of control was found to be greatest among the largest companies, but during the 15-year period it tended to decrease among growing companies. It was greatest in the distributive trades, food, and brewing; least in textiles, chemicals, and paper, the last two having undergone a sharp reduction during the period.

Earnings retention was measured by reference to the dividend pay-out ratio which averaged about 40 per cent for all companies, with lower ratios in industries—especially in the largest companies—where vote concentration was low. Investment success was measured by dividend gain (ratio of dividends during the period to 1936 market value) and capital gain (ratio of market value increase to market value in 1936), the former averaging 100 per cent and the latter 80 per cent, with a high correlation between the two, not only for industry and size groups but even for individual companies. Total gain showed a high inverse correlation with size of company and a high direct correlation with risk as measured by annual variation.

Florence's survey is unquestionably an important contribution to the stock of knowledge about business organization. Although his approach is more indirect than one might wish and many of his conclusions are qualified almost to the point of obscurity, students of corporate evolution will find, upon close reading, that he does shed significant light upon an area which hitherto has been but poorly illuminated.

ROBERT W. MAYER

University of Illinois

Land Economics; Agricultural Economics; Economic Geography; Housing

Energy in the American Economy 1850-1975: Its History and Prospects.

By SAM H. SCHURR and BRUCE C. NETSCHERT with VERA F. ELIASBERG, JOSEPH LERNER, and HANS H. LANDSBERG. Baltimore: The Johns Hopkins Press, for Resources for the Future, Inc., 1960. Pp. xxii, 774. \$12.50.

This comprehensive study probably comes as close to a definitive work as is possible in a field of resource utilization that is so subject to change in techniques and where information on reserves and future practices is at best partially incomplete. The review of past energy consumption in the United

States is cast in terms of the major sources, fuel wood, coal, oil, and natural gas, while future energy demand is projected in the expected changes in the use of coal, oil, natural gas, and electricity. (The role of atomic energy is expected to be unimportant for a period of time well beyond the study's projections.) The projections of future energy use do not rely solely upon extending the past rate of consumption for various resources, however, but embody an assessment of the likelihood of modifications in resource supply and technology. Although some may quibble with the authors' appraisal of the developments in energy utilization that are expected to cause shifts in the pattern of resource use, the study sets forth clearly the judgments upon which the predictions rest. The recognition of the probable changing future pattern of energy utilization and the attempt to describe its course represent significant contributions of this study.

In estimating the energy requirements for the future, more than aggregate trends are compiled. The major energy-using sectors of the economy—industry, commerce, household, transportation, government, and agriculture—provide the frame of reference for the determination of future United States requirements. The use of the sectoral approach lends itself to the treatment of many topics in addition to the usual statistical materials—such as reserve conditions, expected technological developments, cost-price relationships, and a wide variety of technical features of energy use. As a result, the book provides both a forecast of future energy demand and supply and a host of information on economic and technical aspects of energy use. The extensive index together with the large number of tables and charts—120 tables and 73 charts—greatly facilitate the study's use as a reference work.

The authors' broad conclusions furnish little comfort to the neo-Malthusian. In spite of the increased reliance upon foreign supply for our materials requirements since the 1940's, no evidence of serious resource exhaustion or appreciable increase in cost of domestic energy production is shown by the study. Indeed, the authors suggest—but do not recommend—that the United States could meet its energy needs domestically for the next fifteen years without significant cost increase.

LAWRENCE G. HINES

Dartmouth College

Our National Park Policy: A Critical History. By JOHN ISE. Baltimore: The Johns Hopkins Press, for Resources for the Future, 1961. Pp. xiii, 701. \$10.00.

Professor Ise has written about a subject which is obviously close to his heart. His history of our national parks policy is illuminated by the intensity of his feeling as illustrated by such statements as: "Crater Lake might be thought of as the most beautiful lake in the world, for no other lake could be so beautiful." His famous wit is displayed: "Some people have argued that the planes gave a better view of the scenery than could be got from the ground, and saved time too; perhaps in the deep recesses of their minds some were moved by the common American notion that the use of planes would enable them to get past the scenery more quickly."

The book is divided into three parts. Part I traces the development of the early parks covering the period from 1872 to 1916. Part II covers the period from 1916 to 1959 and uses the various administrations of the National Park Service as the main organizational device. Part III treats some special park problems such as wildlife, national park concessions, financing the parks, wilderness areas, and national parks in other countries.

Ise is a frank and open friend of the parks. He describes with sympathy the struggles that park lovers have gone through to protect the parks from lumbermen, miners, grazing interests, reclamationists, power interests, vandals, poachers, dishonest politicians, crude sightseers, and "pure" conservationists who believe any development of natural areas is "bad." Throughout the book the heroes and the villains are clearly identified for the reader. The historical research appears thorough and the book is well documented, but this reviewer was disappointed at the superficial treatment of the conflicts arising over the disposition of park lands. The book illustrates the tensions created when public ownership is attempted in a predominantly private enterprise economy. Yet no generalizations are drawn with respect to the problems common to parks and other public goods. Application of past experience in conflict resolution to future problems will have to be supplied by the reader.

Some will be disappointed at the way Ise uses certain terms that are almost devoid of meaning unless the writer supplies a definition. A case in point is the word "conservation." To Ise a conservationist is one who protects parks. Yet this means that certain people are "conservationists" in a particular situation but are quite the reverse in another. One is led to conclude that a more operational set of principles is needed to decide on natural-resource use than "conservation."

The author's ability as an analyst comes through best in the chapters on financing the parks and wilderness areas. There is little new here, but his familiarity with the literature on the subject and his own acuteness make possible some penetrating comments. He makes suggestions as to ways the national park deficit could be reduced, and his treatment of wilderness areas is moderate and well balanced. He states the conditions under which wilderness areas will yield more utility than in other uses. One concludes that Ise is a bit more temperate when viewing possible future policies than he is when passing judgment on past actions.

EMERY N. CASTLE

Oregon State University

Labor Economics

The Steel Industry Wage Structure—A Study of the Joint Union-Management Job Evaluation Program in the Basic Steel Industry. By JACK STIEBER. Cambridge: Harvard University Press, 1959. Pp. xxiii, 380. \$8.00.

The successful operation of a collectively-bargained, industry-wide, inflexible, job-evaluation system in the oligopolistic, large, basic-steel industry is carefully described by Jack Stieber in this monograph. One unique characteris-

tic of this system is that it was relatively insulated from labor-market forces which have had their impact upon the degree of liberalism in administration of the entire structure, rather than on individual occupations. The importance of key jobs in linking plant wage structures and the labor market is therefore called into question.

The study meticulously documents the development and administrative problems faced by this program. In contrast, it depicts the efforts and failures at reaching a comparable agreement on wage incentives. The parties lacked agreement of purpose and suffered from differences within their own ranks as to procedure and goal. Concentrating as this inquiry does on the negotiations of the agreements, the attitudes of union leaders and company officials, and formal administrative problems, it should be supplemented by reports on the human behavioral aspects within the plants, particularly because the intense feelings on the subject of work rules became so critical in the 1959 strike. Is the seeming acceptance of the job-evaluation system largely the consequence of the succession of annual increases in wages and fringe benefits and adjustments in wage incentives, rather than any sanction for the program itself?

This painstaking documentation of the cautious, considered negotiations leading to the agreement on job evaluation graphically discloses the interplay of common union management purposes, the international union's political problems and concern for its institutional security and the constructive direction provided the parties by the War Labor Board and its agency, the Steel Commission. The union desired to eliminate inequities. Moreover, deep-rooted in the union outlook is the acceptance of the principle favoring a standard national occupational wage scale. Management fortunately created a base for such negotiations through its Cooperative Wage Study, which sought to rationalize rather than replace the existing wage structure. Negotiations extended over a two-year period from January 1945 and resulted in four tentative agreements before a completed plan was approved.

Besides prescribing a uniform industry job-rate structure, the plan deviated from other job-evaluation plans in that it allotted greater weight to responsibility than to skill. It has therefore survived the impact of recent technological change better than traditional plans. After acceptance by the U.S. Steel Company, it was extended by the union to most other companies in the industry. Strict administration and centralized supervision of the program by the multi-plant corporations and the continued operation of an industry clearing house, The Cooperative Wage Bureau, have tended to make for inflexible adherence to the established wage structure. Departures have been noted primarily for isolated jobs and single plant companies. Arbitrators have also upheld managements in most cases where unions have sought more liberal applications.

The negotiation of an agree-upon set of general principles for the operation of the wage incentive system proved impossible. But with the aid of the Wage Stabilization Board and arbitration decisions, the way was cleared for the replacement of "old" by "new" systems and the adjustment of rates. As a result, there has been a progressive conversion in operation since 1951 and

more jobs are covered by wage incentives. Disputes have been handled by arbitrators on an individual basis. Disgruntlement among incentive workers disappeared as few of them could complain of not sharing in the wage improvements and of finding their differentials over day-rated jobs whittled down. As these bonuses increased, the union made demands for extending incentive coverage to satisfy day workers. The dispute over principle is being submerged in the contest over the adequacy of earnings on individual jobs, a procedure which permits progressive accommodation. No answer is provided on the adequacy of this process.

The adoption of the job-evaluation program has favored the progressive elimination of the geographical differentials which became fully effective in 1954. Now one single uniform occupational base-rate structure covers the entire industry. There has been relatively general adherence to this structure. But because of the varying methods of wage payment, and variations in incentive yields for similar jobs in different plants, occupational earnings for identical jobs are not uniform. The dispersion in occupational and plant average earnings is therefore greater than before the inequities programs were instituted. Not only has this program affected plants directly bound by the CWS scale, but also other companies in the industry.

The uniform occupational structure has provided a stable and orderly wage relationship within plants. But there has been no such correspondence between earnings and job classification. Only as "new" incentive systems replace "old" ones and adjustments are made in both to fit new conditions, is the correspondence increasing. The improved alignment of earnings with job classifications contrasts with the declining skill differentials found by Stieber to have occurred between 1907 and 1938.

Many other conclusions are noteworthy. He repeatedly emphasizes the importance of union support for the effective operation of the evaluation system. He found that industrial engineers can prove as flexible in administration as industrial relations men. He favors union participation in the formative stages and in the original installation and administration of a job-evaluation program.

This is a useful, careful study of a job-evaluation program, operated in an industry with wage levels far exceeding local labor-market levels. As such, much of its value is that of the analysis of problems of a special case in job evaluation.

SOLOMON BARKIN

Textile Workers Union of America

Wages in Germany, 1871-1945. By GERHARD BRY. National Bureau of Economic Research General Series No. 68. Princeton, N.J.: Princeton University Press, 1960. Pp. xxvi, 486. \$10.00.

Professor Bry has recorded the behavior of wages in an important industrial country over a period of three-quarters of a century. It is an exhaustive study, based on a large amount of research. The data stem from published time-series and from those he constructed from secondary sources. He analyzes the bases and validity of existing indices, makes imaginative use of inferences

where directly applicable data were unavailable, and his writing proves a thorough perusal of the entire literature on the subject. The data on which the analysis is based are reproduced in an appendix of 150 pages, which is a mine of information and a demonstration of the painstaking work that has gone into the compilation of the series. As in every National Bureau publication, all this has been done with a high degree of competency and accuracy, and it will provide plenty of material for many a theoretician to find a basis for general theories of wage behavior.

Nor is this a period lacking in general interest: its inception is the beginning of the German Reich, it comprises the 19th century industrialization, both world wars, the fantastic period of inflation, the great depression and the third Reich. Wage behavior is described in all its ramifications, including the behavior of money and real wages, skill, age and sex differentials, response to a variety of business cycles, as well as wars and inflation. The phenomena described are explained by the events that brought them about, and analyzed in terms of the causes that might account for their particular behavior in the immediate context. And yet, notwithstanding his admiration for the great achievements of such a large undertaking, the reader is left wistfully disappointed.

Although he has been permitted to observe the different kinds of wage behavior through the author's clear description—often, particularly when he is dealing with the last quarter-century, in clear and interesting prose—he feels the need of relating the results to a larger context. Though labor events in Germany may be interesting in themselves, for some readers they become generally important in their contribution to a broader understanding of the response of wages to economic occurrences, of how private or public wage policies might bring about desired economic results, and in helping reformulate and clarify general wage theories. Maybe this should not even be a criticism, inasmuch as the author himself indicates that his study might “be helpful for an appraisal of generalizations of this sort” (p. 11)—in other words, it lies beyond the task he set himself. Also, the last chapter, which compares German wage behavior with British and American experience during the same period, permits—often by implication—applications leading to some general conclusions. Nonetheless, this rich material would have lent itself so well to posing hypotheses and investigating their applicability, that one cannot help being disappointed to see it left to the next scholar to pluck the fruit.

Some nuggets make very interesting contributions to wage theorizing. Bry seems to feel generally that wages are more apt to follow the prevailing economic conditions than either price movements or the behavior of unemployment. He disputes Bresciani-Turroni's contention that changes in wage-price ratios are closely related to unemployment fluctuations (p. 221), and points out that these changes may depend more on the particular phase of the cycle or the degree of inflation at the time. Similarly, Bry warns that the resemblance between the movements of real earnings and per capita production is misleading, and he suggests that the trend of real wages primarily follows the country's economic fortunes (p. 79). He observes that in all three industrial countries (Germany, Britain and the United States) many wages hold their

own when living costs decline mildly, and respond to radical price declines with relatively smaller decreases. For Germany he strongly asserts the positive conformity of real wage rates with changes in business conditions as the norm, in other words the correlation of money and real wage rates to business cycles. He points out that this contradicts Keynes' theory that money and real wages move in opposite directions, and thus bears out Dunlop and Tarshis in their famous *Economic Journal* articles (rather than Ruggles). Normally, he finds, German "real wage rates rise during mild contractions and during early phases of severe conditions, but decline as the depression deepens" (p. 302).

The comparisons between the three countries are particularly interesting since they have had comparable industrial histories and have been the center of industrialism during this three quarter century. Over the longer run, there are many similarities in movements, though usually German responses to economic events are stronger, particularly in wartime, than British, let alone American reactions—indicating the relative degree of involvement. It seems, however, that we could have learned more by analyzing the discrepancies rather than the similarities between these countries.

The institutional differences are, for instance, often quite instructive. While uniform unionism grew in Britain, the German feud between "free" unions, largely tied to the socialist party, and the "Christian" unions, which were a response to the former's antichurch attitude, made union development difficult (p. 30); the political (and economic) implications of this difference, which produced different attitudes toward parties and toward state action, should have been explained in detail. It is also of interest to learn that while Bismarck suppressed unions vigorously, he found it necessary to counteract this action by social reforms (nationwide sickness, accident and old-age insurance), which turned out to be permanent. In the postwar period, strong unions were opposed by strong employer associations (as was the case earlier in, e.g., Scandinavia), so that generally accepted collective bargaining permeated the economy, and agreements were often declared binding on nonsigners in the same industry. A comparison with U.S. experience in the 'twenties may show that this institutional situation explains better the relatively more pronounced German tendency toward downward wage rigidity, i.e., the greater lag of wage changes after the business turning point (p. 296). It may be worth noting that, when the Nazis took over, they abolished unions as such, and tried to hold wages stable. At the same time in the United States collective bargaining was encouraged as were wage increases. Social measures added other income to workers' earnings, while in Germany resources were coaxed into armaments!

Employer organizations were often based on cartelization, particularly in producers' goods, thus permitting, with price controls, profitable expansion under the Nazis (p. 254)—a phenomenon which facilitated the organization of industry into corporate "estates" which could then be better directed and controlled. As far as wages were concerned, Nazi controls prevented them from rising beyond depression levels. Bry describes the system by which worker movements were strictly controlled through work books and job assignments, production incentives were constantly re-adjusted to keep earnings down, and even with increased hours workers' earnings were held below the 1929

level. However, this reviewer feels strongly that the author has taken the controls on paper too seriously, and has exaggerated their efficacy. Not only are money wage statistics deceiving, because food from the farm or different kinds of "loot" sent by soldiers from occupied countries may have actually changed the "real" income of many; but, more importantly, the author seems to be overly impressed with the totality of the Nazi war machinery, which is contradicted by the findings of the U.S. Strategic Bombing Survey. Having served with it, this reviewer is convinced that Germany fell short of total mobilization, as compared with other belligerents, particularly Great Britain. Labor was not fully transferred to essential occupations, nor were women fully mobilized. Civilian consumption levels seemed to indicate a "guns and butter" philosophy long after the Allies had cut down on nonessentials. While forcing foreign laborers into work helped, the total employment of Germans stayed the same throughout the war, not even taking full advantage of the natural population growth. The employment of British women jumped by 50 per cent while domestic work shrunk considerably—neither of which occurred in Germany. This may explain the success of wage controls more completely than the author's reliance on the completeness of the control apparatus, which he contrasts with the inefficient system in the first world war. The powers of conscription and labor control were more complete than democracies would dare impose, yet women drifted out of the labor force, the total number of Germans in the armed forces plus civilian employment stayed virtually the same throughout, and the hours worked never, on the average, much exceeded the 48-hour level. It was not until the labor scarcities of 1944 were experienced that late and therefore not-too-successful attempts were made to invoke stringent manpower and wage controls. It seems useful to mitigate the impression from Bry's statistics by this information which was obtained by on-the-spot interviews and information available when the war was almost over.

One final point: we have, since the war, been particularly conscious of the dangers of inflation. This makes the author's description of the German hyperinflation of 1922-23 doubly interesting. Unless we have read Fallada's books (e.g., *Wolf among Wolves*) we are quite unaware of this fantastic phenomenon. For example, in 1919 wages quintupled prewar levels, in 1920 they were 10 times as high, in 1921 20 times, mid-1922 50 times, end-1922 500 times, mid-1923 10,000 times, and at the end of 1923 a trillion times (p. 214). The flight into physical goods, both by producers (inventory, raw materials, even equipment) and consumers (from food to jewels) led eventually to a situation in which the workers' wives obtained their wages in the morning, lest their purchasing power be halved come evening. The honorarium for a lecture failed to pay for subway fare! It makes fascinating reading.

This is an impressive work. It is probably "the most comprehensive study of wage behavior available for any country," as the dust-cover claims. None of the suggestions made above should be interpreted as detracting in the least from the great merits of this volume, and its great importance for further scientific investigation.

KIRK R. PETSHEK

Philadelphia, Pennsylvania

Stratégie de la lutte sociale: France 1936-1960. By FRANÇOIS SELLIER. Paris: Les Éditions Ouvrières, 1961. Pp. 349. NF 18.60.

In the years since the second world war the French economy has made impressive gains; in rates of growth of output and employment, in degrees of modernizing change, its record compares well with those of most industrial countries. And yet it is not certain that the last quarter-century has seen a significant decline in the intensity of social conflict in France. The conflict has not been limited to the industrial sphere. As indicated by the Poujadist outburst of several years ago and the more recent peasant disturbances, it has been a general struggle between many social and economic groups. It is, however, in the wage-earning sector that conflict has been most acute and continuous. A significant portion of the French working class remains sullen—withdrawn from the main stream of political life, hostile to the existing order, prone to radical and even violent programs for change.

Professor Sellier's book has as its main focus this failure of "social negotiation" in French industrial relations. He analyzes the development of the French industrial relations system since 1936, covering the legal framework, the nature and results of state intervention in the labor market, industrial relations at the plant level, the strategy and tactics of negotiation, and the strike. In his analysis he emphasizes the extraordinary impotence of organized French labor in matters of direct control over terms and conditions of employment. The French labor movement has been with few exceptions incapable of organizing effectively at the plant or shop level. Its achievements in collective bargaining have been sporadic in time and limited in extent. Genuine collective bargaining has in fact had only a brief and insecure existence. For most of the past 25 years government decisions have been decisive in the determination of wages and conditions of work. Even since the legal abandonment of government wage-fixing in 1950, minimum wage policies and imposed settlements have continued to give government the major role in the labor market. Real negotiation between the two main parties remains a rarity. Joint wage negotiations, for example, are restricted to the establishment of minimum rates on an industry-wide (usually regional) basis; actual rates are in general determined by unilateral management decisions in each plant or company. Plant-level negotiation of any but the most innocuous issues is indeed rejected in French managerial ideology; with some few exceptions, French managers conceive of collective bargaining as something foreign to the plant, a sort of diplomatic function performed for them by paid ambassadors (employer association representatives) at the rarified and impersonal level of the industry or the nation. Even the much-heralded Renault agreement of 1955, Sellier points out, was hardly the triumph of joint negotiation it was advertised as being; basic provisions of the agreement were so drawn as to leave execution to managerial discretion.

Sellier regards this absence of the practice and habit of negotiation as fundamental in explaining the instability of French industrial relations. The responsibility for it he places on French management and on the nature of French law in the field of labor relations. In their struggle to retain unfettered

action French managers have been heartily assisted by the law, which has defended managerial and property rights with vigor, but has provided small protection for trade union organization in the plant. Although he does not specifically say so, it is clear from a number of wistful references to the Wagner Act that Sellier believes French law could profitably incorporate the American legal concepts of unfair labor practices and the duty to bargain.

Many of the characteristics of the French pattern of industrial relations can doubtless be explained by the legal environment and by management refusal to recognize the legitimacy of union organization in the plant. But in most other industrial countries management groups either have chosen (as in Sweden) or have been obligated (as in the United States) to recognize and negotiate with organized labor. Why has this not occurred to a greater extent in France? One highly relevant factor is the ideological cast of the labor movement; the long and continuing revolutionary tradition of at least a large segment of the French proletariat is certainly not without influence. The main stream of French labor has always regarded negotiation with management as somehow debasing, as dealing with the enemy. This has meant on the one hand an added unwillingness to negotiate on the part of management, and on the other hand a tendency within the labor movement itself to reject negotiation, to regard it as a bourgeois preoccupation with mere "corporate" or occupational interests.

Granting the importance of the ideological factor leads to another question: why has not the revolutionary ideology of the French working class become, as in other industrial countries, more temperate? The decline of influence of the Communist Party and other recent developments suggest that some such mellowing may in fact be occurring, but less than in most industrial countries. The reason probably lies somewhere in the peculiar nature of French political life, the exclusion of the wage-earning class from effective and sustained participation in political and economic decision-making, and the apparent failure of the French economic system to spread the fruits of economic expansion in such a way as to substantially narrow the gap between the material aspirations of the working class and its material rewards.

Sellier unfortunately does not go into these matters to the extent that they deserve, possibly because his study seems to be based mainly on the experience and attitudes of the Catholic unions (*Confédération Française des Travailleurs Chrétiens*); most of his citations on union ideology and strategy are taken from CFTC documents. He briefly discusses radical labor ideology, but only as a factor in employer reluctance to negotiate. Nor—except for some data showing a sharp decline in the share of wages in national income between 1938 and 1947—does he tell us very much about the behavior of real wages and income distribution over the period he is considering. The effects of the family allowances system, which some writers regard as highly significant, are not explored. He does however suggest that wage-setting procedures in the postwar period have tended to cause periodic declines in real wages; by delaying tactics in wage negotiations government and employers have lengthened the lag between price changes and wage adjustments.

Sellier's book has much that will be of interest to students of comparative industrial relations. His chapters on the effects of government minimum-wage policy, and on the wage effects of the structure of collective bargaining, contain many suggestive insights into the economic consequences of union structure, negotiating strategies, and the general problem of wage-price relations in periods of full employment. It is unfortunate that Sellier has not given more detailed treatment to the economic analysis of the problems he raises. The book also suffers from a sparsity of supporting statistical evidence, which is surprising in the light of Sellier's stress on the importance of the economic environment in conditioning industrial relations behavior. The organization of the book, furthermore, makes for a certain ambiguity as to the direction of change; by treating the period 1936-1960 as a unit Sellier leaves unexplored the effects of the rapid growth of the French economy since 1950 and changes in the structure of the economy, such as the relative decline of the family firm. Finally, the usefulness of the book to the nonspecialist (and particularly the non-French) reader would have been enhanced by the inclusion of a bit more basic institutional background. Because the book is in the nature of an interpretative essay, the reader innocent of the main features of the French economic and social landscape may not be able to make his way easily through some of it.

ELLIOT J. BERG

Harvard University

Labor Economics and Institutions. By ARTHUR D. BUTLER. New York: The Macmillan Company, 1961. Pp. xxi, 595. \$6.50.

Professor Butler has produced a solid text for an introductory labor economics course. It is well-ordered, maintains interest without sacrificing analysis, and within a reasonable length it covers the material that most beginning labor courses are made of.

The book's 25 chapters are divided into five parts: (1) Unions and the Labor Force; (2) Collective Bargaining; (3) Wages; (4) Unemployment and Economic Insecurity; and (5) The Major Trends. The final section briefly discusses the evolution of the major issues in labor economics and labor relations, and offers some well-hedged predictions about the important issues of the future. If Butler's foresight proves accurate, our concerns will be jurisdiction, wages, management rights, government intervention into key wage-bargaining situations and centralized control over bargaining. We will not be worrying about labor's political power, because it will not increase significantly.

Part I follows a format by now rather traditional for beginning labor economics texts, dealing essentially with the questions: What is the labor force? Who is in it? Why have workers formed unions? How are unions governed? What does the future hold for unionism?

A useful innovation is made in the collective bargaining section. Public policy toward collective bargaining is treated together with the more traditional analytical and institutional material. Fully a third of Part II is devoted

to chapters on "Antitrust Regulation of Unions," "Government and Collective Bargaining," and "National Emergency Disputes." Although the treatment of public policy is a bit thin at times, if the course is organized around this text, students are likely to get more actual exposure to this material than customarily occurs in the introductory course.

In his chapters on wages, Butler's prose is sparing, and his omissions by and large welcome. Gone are the interminable discussions and classifications of early wage theories, and in their place is a brisk presentation of wage determination in the firm under varying assumptions. This is followed by a useful chapter which summarizes recent research into the determinants of wage structures and patterns.

I found the chapter "Unions and Wages," a bit tiresome. Devoted entirely to the question of whether or not unions influence wages, the author finds, at length, that they do, or they do not. His conclusion is hard to reconcile with the later prediction that government is likely to play an increasingly important role in key wage bargains. Much of this discussion could, in my view, be sacrificed for some material on the meaning and uses of productivity measures (such as is found in the much longer volume by Bloom and Northrup).

But despite these and other quibbles one may have with it, the text is a good one, and should prove to be an effective teaching instrument. Butler has given more than routine thought to the discussion questions which follow each chapter, and the bibliographies are selective and useful.

One appealing feature which, in my view, sets this book apart from many of its older competitors is the rather sophisticated discussion of the relationships of trade unionism to economic stability and growth. The three concluding chapters to Part IV deal entirely with the larger economic context of unionism, and include brief discussions of British and Swedish experience.

Labor economics texts are changing in another respect too: Jimmy Hoffa now receives more notice than John L. Lewis.

EARL F. CHEIT

University of California, Berkeley

Labor Problems and Processes. By L. REED TRIPP. New York: Harper & Brothers, 1961. Pp. xviii, 510. \$6.00.

The study of labor problems demands a knowledge of many social sciences. Few are the economic principles which apply. Social institutions can be studied as they exist, with the impact of the past upon them, the psychology of the present, and the objectives, goals and political pressures of diverse groups. Professor L. Reed Tripp is an institutionalist. He is not a product of the University of Wisconsin but he is on the faculty of that university and has had much of his philosophy molded by Selig Perlman and Edwin Witte to whom he has dedicated the book.

The book is divided into seven parts. Each part has a prologue containing the gist of the author's philosophy, and each chapter within the part has a conclusion summarizing the points of significance made in the chapter. This arrangement makes for a sense of continuity in the presentation as well as

ease of transition from topic to topic. Thus Part I entitled the American Labor Movement, presents in eight chapters the historical development of the labor movement, the origin of the A.F. of L., the C.I.O.-A.F. of L. merger, unionism since the second world war, an excellent analysis on labor theory as developed by Hoxie, Mitchell, Commons and Perlman, and the "human relations" school, a description of the structure and function of contemporary unions, and a chapter on interunion activities.

Part II includes a discussion of the problems and characteristics of the labor market. An analysis of the free market theory—the pet of many economic theoreticians, in contrast with the collective bargaining view, and the influence of the determination of wages by government regulation. Free market theory pictures the worker as having a choice among many jobs. Tripp shows that the realities of the labor market fly in the face of the notions of economists. Only the study of the *behavior* of workers and employers, their psychology and the sources of their securities and insecurities, can throw light on actual labor-market operations. Analysis in terms of the marginal productivity theory of wages, and the use of mathematical tools such as calculus, may provide a theoretical model, but so far it has had little relation to the practices of the labor market. "Inductive studies of results in the real world reveal such discrepancies, as to question the relevance or applicability of the analysis," declares Tripp.

Part III presents a discussion of labor legislation and the governmental framework of the labor market, including minimum labor standards, social security legislation, and labor relations legislation.

Part IV includes four chapters on collective bargaining ranging from negotiation, through union goals and management needs, as well as a discussion of the cost-income aspects of collective bargaining. Tripp cleverly juxtaposes the theories of the economist vis-à-vis the practical psychology and practice of Joe Doaks, the worker, and his counterpart in management.

Part V deals with the institutional operation of the labor market, wage criteria of the bargaining table, and the influence of the economic, political, and social forces of the nation, as they impinge upon the bargaining process. The consideration of the "alternatives" to collective bargaining is somewhat blurred by the controversial interpretations of inflation. "The uneasy triangle" is the dilemma of modern capitalism: (1) the maintenance of a high level of employment, (2) relative stability of the price level, and (3) the preservation of as broad a scope as possible, of free decision-making as to prices and free collective bargaining as to wages. Modern economic policy may achieve any two of these objectives but can all three be realized? However, Tripp indicates that "to the extent that collective bargaining wage levels are arrived at realistically in terms of company prospects on the employer's side, and fear of wage and job loss on the union side," the uneasiness of the triangle may be exaggerated!

Part VI is an analysis of government labor policy involving the regulation of collective bargaining, a consideration of public emergency disputes, and governmental employment and unemployment policy. Part VII has to do with international labor affairs. There is an excellent, albeit concise, chapter contrasting foreign and U.S. labor movements, a consideration of U.S. labor

activities abroad, and a final chapter on the struggle of the "isms" and their influence on organized labor.

Tripp discusses the stimulus function of organized labor in economic growth. He declares that conflict itself in the collective bargaining arena, can have positive values in the context of economic growth. Efforts to minimize costs might effectively wipe out the values.

The author has described a dynamic aggressive economy including an equally dynamic labor movement. What if technology and social and political forces of our society so influence the labor force that it cannot use trade union organization or the power of political pressure groups? Who then will make the decisions for their welfare?

The book is excellent as a survey of labor problems and the processes for solving them. It is unencumbered by statistics which are rapidly outdated, and by conflicts between theories and realities—a source of bewilderment for many college students.

THERESA WOLFSON

Brooklyn College

Population; Welfare Programs; Consumer Economics

Doctors, Patients, and Health Insurance. By HERMAN M. AND ANNE R. SOMERS. Washington, D.C.: The Brookings Institution, 1961. Pp. xix, 576. \$7.50.

This is a timely book—as our newspapers and popular magazines attest—and it is a good one. It will serve as a benchmark, a classic in the literature on economic and social aspects of medical care for many years to come. And the Somers' book deserves a further accolade; it is a model for studies of public policy issues. The authors show a healthy respect for the complexity of their subject, a dedication to the processes of our democracy, and sufficient humility to avoid dogmatism in their judgments and conclusions.

Organization, distribution, and financing of medical care, and the changing institutional environment surrounding these activities are the Somers' main concern. They see their subject as a subtheme in "the central plot of all social history—man's struggle to rearrange his social organization and institutions to keep pace with his accumulating knowledge, changing needs, and altered environment" (p. 493).

In the field of medical care, public and private action complement each other in an increasingly "mutually supportive and sustaining relationship," the Somers believe, and they predict that: "The future pattern of our medical economics will remain in the typical American pluralistic tradition, although the balance of emphasis may shift periodically" (p. 532).

The first part of the book deals with the supply side of medical care. In this section the authors consider specialization and rising productivity in medical practice, the relative decline in the number of doctors, the growth of paramedical professions, and the role of the hospital, pulled in different ways as a doctors' workshop and as a community health center.

The Somers question whether hospitals "will be permitted to continue in

relatively extravagant autonomy or whether, as they consume an increasing portion of public and personal budgets, the public will insist upon coordination in one way or another" (p. 90). They see here the dilemma in organizing all medical care, "the necessity of reconciling large-scale organization and large-scale financing with the continuing need for highly individualized services" (p. 70). And they warn that "the general patterns of professional-consumer relationships have not yet yielded substantially to the changing circumstances, and medical care remains almost entirely controlled by the suppliers" (p. 499).

In a section on "The Revolution of Rising Expectations in Consumer Demand," the Somers point to development of the concept of "adequate medical care" as a human right, hence a political issue, but they warn that "universal access to medical care may have to be accompanied by some institutional restraints on the consumer" to prevent irresponsible and costly medical care demand patterns, particularly in hospital utilization (p. 166). But doctors have a determining voice in the volume and character of effective demand, the Somers say, pointing out that hospitalization, the most expensive kind of medical care, requires a doctor's authorization.

The interaction of demand and supply in "the changing medical marketplace" has resulted in increasingly active efforts—public and private—to ease the burden of rising medical-care costs. The Somers point to a fundamental institutional change in the rapid development of "third party" arrangements for payment, prepayment, or insurance to meet these costs. They devote a chapter to employee health care programs, including a discussion of organized labor's goals in collective bargaining and public policy, a field explored more thoroughly in Joseph W. Garbarino's *Health Plans and Collective Bargaining*.

The Somers see great significance in labor union support for public health insurance for the aged, the disabled, and the unemployed. They believe—and experience of members of Congress tends to corroborate this belief—that employer opposition "has been at least partly neutralized by the argument that such a program would probably cost less than equivalent benefits financed privately." This belief leads them on to say: "Thus it is increasingly clear that the vendors of medical care in the United States are confronted for the first time, with organized and effective countervailing power—in both the economic and political spheres" (p. 242).

The longest section of the book, "Private Health Insurance: Programs, Pressures, and Problems," describes the major health insurance carriers—commercial companies, Blue Cross, Blue Shield, and the independent programs; and there are useful, informative tables in the appendix. But the Somers warn that "the absence of complete or comparable data in this field is a formidable obstacle to objective analysis and public policy conclusions" (p. 259).

The hot political issue of health insurance for the aged is only one aspect of the total problem of effective protection for the general population against health costs, and the Somers clearly favor the social security approach in this instance. "The assumption by government of responsibility for the poorer risks—with which private insurance cannot profitably cope to the public satis-

faction—could liberate the [insurance] industry to met successfully the challenge to survival in the much larger area of those under 65" (p. 450).

The Somers believe that private insurance can and probably will remain the primary method of financing medical care in this country, with insurance benefits rising from one-quarter to two-thirds of total spending on medical care. But rising demand for more comprehensive health services and more complete financial protection will increase the difficulty of controlling skyrocketing medical and health insurance costs.

Herman M. Somers, head of the political science department at Haverford, was a member of the President's Task Force on Health and Social Security. With his economist wife, he has given us a revealing look into the economics of medical care.

MARKLEY ROBERTS

Assistant to Senator Hubert H. Humphrey

TITLES OF NEW BOOKS

General Economics; Methodology

- AMOROSO, L. *Le leggi naturali della economia politica*. Turin: UTET, 1961. Pp. xii, 290.
- BANBURY, J. AND MAITLAND, J., ed. *Proceedings of the Second International Conference on Operational Research (Aix-en-Provence 1960)*. With résumés in French. New York: Wiley, 1961. Pp. xx, 810. \$15.
- BRAND, H. W. *The fecundity of mathematical methods in economic theory*. Dordrecht: D. Reidel, 1961. Pp. viii, 56. f 12.75.
First pub. by Fritz Knapp, Frankfurt am Main. Transl. by E. Holmstrom.
- BRESCIANI-TURRONI, C. *Saggi de economia*. Milan: A. Giuffrè, 1961. Pp. v, 634.
- BRUNSWICK, A. F. AND SHEATSLEY, P. B. *A personal interview survey of college economics teachers (conducted for the American Iron and Steel Institute)*. Rept. no. 79. Appendix, Tables, Rept. no. 79-A. Chicago: Nat. Opinion Research Center, 1961. Pp. 55; 51.
- DEVONS, E. *Essays in economics*. London: Allen & Unwin, 1961. Pp. 203. 25s.
- DODD, J. H. AND HAILSTONES, T. J. *Economics—principles and applications*. 4th ed. Cincinnati: South-Western, 1961. Pp. xii, 849. Instructor's manual available.
- FENN, D. H. *Managing America's economic explosion*. New York: McGraw-Hill, 1961. Pp. 269.
- GÜLICH, W., ed. *Wörterbuch wirtschaftlicher Fachausdrücke—Italienisch-deutsch*. Kiel: Inst. f. Weltwirtschaft, Univ. Kiel, 1961. Pp. vii, 256. DM 15.
- HARLAN, H. C., ed. *Readings in economics and politics*. New York: Oxford Univ. Press, 1961. Pp. xvi, 751. Paper, \$2.75.
- LISLE, E. *L'Anglais économique—dictionnaire de concepts*. Paris: Bd. Cujas, 1961. Pp. xxxv, 199.
The introduction is in both French and English; the dictionary itself is in English. "The purpose . . . is to show how economic literature can be read with a view of grasping economic language." The book is particularly designed for the use of those whose native language is not English, to help them understand the precise meaning of a large number of English economics terms.
- SELDON, A., ed. *Agenda for a free society—essays on Hayek's *The Constitution of Liberty**. London: Hutchinson for Inst. of Econ. Affairs, 1961. Pp. 192. 25s.
- SOULE, G. with assistance of TRAYWICK, L. E. AND BODDY, F. C. *Economics—measurement—theories—case studies*. New York: Holt, Rinehart and Winston, 1961. Pp. xii, 446. \$5.75.
- SPIEGEL, H. W. *Current economic problems*. 3d ed. Homewood: Irwin, 1961. Pp. x, 694. \$7.95.
- International bibliography of economics*. Vol. 8. Prepared by Internat. Com. for Soc. Sciences Doc. in coop. with Internat. Econ. Assoc., UNESCO pub. New York: Internat. Doc. Svce., Columbia Univ. Press, 1961. Pp. 560. \$10.
- The teaching of economics in Latin America*. Stud. and monogr., 1. Washington: Pan American Union, Gen. Secretariat, Org. of American States, 1961. Pp. xi, 100. 50c.
A report to UNESCO, UNECLA and OAS by H. S. Ellis, B. Cornejo and L. E. Cerda.

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

- COOKE, H. J. *The role of debt in the economy*. Washington: Pub. Affairs Press, [1961]. Pp. 115.
- DEL VISCOVO, M. *La localizzazione delle attività economiche*. Padua: CEDAM, 1961. Pp. 293.

- FELLNER, W., GILBERT, M. AND OTHERS. The problem of rising prices. Washington: Org. for European Econ. Co-op., 1961. Pp. 489. \$3.75.
- FELLNER, W. AND HALEY, B. F., ed. Ensayos sobre la teoría de la distribución de la renta. Madrid: Aguilar, 1961. Pp. xxiv, 616.
Originally pub. for the Am. Econ. Assoc. by Blakiston, Philadelphia. Transl. by J. A. Castellano Marco.
- HENDERSON, J. S. National income: statics and dynamics. New York: Harper, 1961. Pp. viii, 439, \$6.50.
- INÁRRITU, A. L. Dinero y capital—dos temas sobre administración del margen inflacionario. Mexico: School of Econ., Univ. of Mexico, 1961. Pp. 186.
- KLEIN, L. R. The Keynesian revolution. New York: Macmillan, 1961. Pp. xii, 218. Paper, \$1.50.
Originally published in 1947.
- LUNDBERG, E. Produktivitet och Räntabilitet—studier i kapitalets betydelse inom svenskt näringsliv. Stockholm: Indus. Council for Soc. and Econ. Stud., 1961. Pp. 286. SKr 24.
- MARRAMA, V. Ciclo economico e politica anticiclica. Naples: Giannini, 1961. Pp. 386.
- MCCRACKEN, H. L. Keynesian economics in the stream of economic thought. Baton Rouge: Louisiana State Univ. Press, 1961. Pp. vi, 201. \$5.
- MICHEL, M. Stratégie du marché—théorie de la firme et vente sous marque. Paris: Presses Univ. de France, 1961. Pp. 246. NF 24.
- PARETO, V. Lettere a Maffeo Pantaleoni, 1890-1923. Edited by G. De Rosa. 3 vol. Rome: Banca Nazionale del Lavoro, 1960.
- PAUNIO, J. J. A study in the theory of open inflation. Bank of Finland Inst. for Econ. Research pub. ser. B:20. Helsinki: Bank of Finland Inst. for Econ. Research, 1961. Pp. 141.
Originally pub. in Finnish 1959. Transl. by J. Railo.
- PIETTRE, A. Histoire de la pensée économique et analyse des théories contemporaines. 2nd ed. Paris: Dalloz, 1961. Pp. 517. NF 18.
- RAFFÉE, H. Kurzfristige Preisuntergrenzen als betriebswirtschaftliches Problem—Prinzipielle Bestimmungsmöglichkeiten von kosten-, ertrags- und finanzwirtschaftlichen Preisuntergrenzen. Beiträge zur betriebswirtschaftlichen Forschung no. 11. Cologne: West-deutscher Verlag, 1961. Pp. xii, 203. Paper, DM 22.50.
- SHACKLE, G. L. S. Decision, order and time in human affairs. Cambridge: Cambridge Univ. Press, 1961. Pp. xiv, 302. \$6.50.
- SMITH, V. L. Investment and production—a study in the theory of the capital-using enterprise. Harvard econ. stud. vol. 117. Cambridge: Harvard Univ. Press, 1961. Pp. xi, 340. \$7.50.
- TASKIER, C. E. Input-output bibliography 1955-1960. New York: United Nations, 1961. Pp. vi, 222.
- Saving in India. New Delhi: Nat. Council Applied Econ. Research, 1961. Pp. xii, 188. \$3.

Economic History; Economic Development; National Economies

- BLYTH, C. A. Economic growth 1950-60. Research paper no. 1. Wellington: New Zealand Inst. of Econ. Research, 1961. Pp. 14.
- BREWIS, T. N., ENGLISH, H. E., SCOTT, A. AND JEWETT, P. with statistical appendix by GANDER, J. E. Canadian economic policy. New York: St. Martin's Press; Toronto: Macmillan, 1961. Pp. xv, 365. \$6.50.
- CHARDONNET, J. Les grandes puissances: étude économique. Vol. 2, Le monde (Europe exceptée). 3rd ed. Etudes pol., écon. and soc., no. 12. Paris: Dalloz, 1961. Pp. 804. NF 30.
- CLAIRMONTE, F. Economic liberalism and underdevelopment—studies in the disintegration of an idea. Bombay: Asia Pub. House, 1960. Pp. vi, 344. Original French edition pub.

- by E. Droz, Geneva and Minard, Paris, 1958. Reviewed in the June 1959 issue of this *Review*.
- COLLETTE, J.-M. La recherche-développement en Grande-Bretagne. Cahiers I.S.E.A., no. 110, ser. T., no. 2. Paris: Inst. Sci. Econ. Appliquée, 1961. Pp. 183.
- COMINOTTI, R. AND GARAVINI, R. Occupazione, redditi e consumi in un grande centro industriale, Torino. Milan: Feltrinelli, 1961.
- COORNAERT, E. Les Français et le commerce international à Anvers. Fin du XV-XVIème siècle. 2 vol. Paris: M. Rivière, 1961. Pp. 448; 360. NF 35; 35.
- COSTANZO, G. A. Programas de estabilización económica en América Latina. México: Centro Estud. Mon. Latinoamericanos (CEMLA), 1961. Pp. 143.
- DA SILVA, J. G. Marchandises et finances—lettres de Lisbonne. Paris: S.E.V.P.E.N., 1961. Pp. 492.
- DAVIS, L. E., HUGHES, J. R. T. AND McDOUGALL, D. M. American economic history—the development of a national economy. Homewood, Ill.: Irwin, 1961. Pp. xiii, 408. \$7.50.
- DELEFORTRIE, N. AND MORICE, J. Les revenus départementaux en 1864 et en 1954. Paris: A. Colin, 1959. Pp. xii, 340. NF 19.
- DE PRADA, V. Lettres marchandes d'anvers. Vol. 3. Paris: S.E.V.P.E.N., [1961]. Pp. 241.
- DI FENIZIO, F. Le leggi dell'economia. IV, Diagnosi, previsioni, politiche congiunturali in Italia. 2 vol. Milan: L'Industria, 1959.
- EINAUDI, L. Cronache economiche e politiche di un trentennio (1893-1925). Vol. 5, 1919-1920. Turin: Giulio Einaudi, 1961. Pp. xliii, 994. L. 5000.
- FERREIRA LIMA, H. Formação industrial do Brasil—período colonial. Rio de Janeiro: Ed. Fundo de Cultura, 1961. Pp. 328. Cr\$ 450,00.
- FISHER, F. J., ed. Essays in the economic and social history of Tudor and Stuart England—in honour of R. H. Tawney. New York: Cambridge Univ. Press, 1961. Pp. 235. \$5.50.
- FROST, R. The backward society. New York: St. Martin's Press, 1961. Pp. 246. \$5.
 "This book is concerned with the problem of increasing the wealth of poor and backward countries." The five parts successively consider: "the international context of the problem"; "the nature of the backward nation"; "the question of reorganizing backward nations along modern lines"; "the organization in practice, and in terms of, a country's economic resources, . . ."; and "the significance of foreign trade as providing the main opportunity for the progress of backward countries."
- FURTADO, C. Desenvolvimento e subdesenvolvimento. Rio de Janeiro: Ed. Fundo de Cultura, 1961. Pp. 272. Cr\$ 450,00.
- GADGIL, D. R. Planning and economic policy in India. New York: Asia Pub. House; New York: Taplinger, distrib., 1961. Pp. xvii, 199. \$4.50.
- GARINO-CANINA, A. Scritti di storia economica e finanziaria. Turin: Giappichelli, 1961. Pp. xxix, 350.
- GENDARME, R. L'Economie de Madagascar. Diagnostic et perspectives de développement. Etudes malgaches, no. 1. Paris: Cujas, 1960. Pp. 212. NF 22.
- GUELFAT, I. Doctrines économiques et pays en voie de développement. Paris: Presses Univ. de France, 1961. Pp. 132. NF 6.
- HACKER, L. M. Major documents in American economic history. Vol. 1, From an agrarian to an industrial economy (1785-1900). Vol. 2, The Problems of a world power (the 20th century). Princeton: Van Nostrand, 1961. Pp. 188; 187. Paper, \$1.25 each.
- HALDAR, M. K. AND GHOSH, R., ed. Problems of economic growth—report of a seminar held in Tokyo, 1957. Delhi: Office for Asian Affairs, Cong. for Cultural Freedom, [1960]. Pp. 229.
- HEERS, J. Genes au XVe siècle. Paris: S.E.V.P.E.N., 1961. Pp. 741.

HICKS, U. K., CARNELL, F. G., HICKS, J. R., NEWLYN, W. T. AND BIRCH, A. H. *Federalism and economic growth in underdeveloped countries—a symposium*. New York: Oxford Univ. Press, 1961. Pp. 185. \$4.

This symposium is based on papers presented at a conference which met at Exeter in 1959. "The aim of the Working Party discussions . . . was to throw light on the problems of emergent countries which have adopted, or are in course of adopting, federal constitutions. . . . It was hoped that, by bringing together the separate approaches of anthropologists, political theorists and the various relevant branches of economics, not only the solutions but also the problems themselves would become clearer. In this I think we were not wholly disappointed." (From the introduction by Ursula K. Hicks.)

HODGKINS, J. A. *Soviet power: energy resources, production and potentials*. Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. xviii, 189. \$5.25; text, \$3.95.

JOLY, R. AND ESTIENNE, P. *La Région du Centre. France de demain*, no. 8. Paris: Presses Univ. de France, 1961. Pp. 156. NF 15.

KALDOR, N. *Ensayos sobre desarrollo económico*. México: Centro de Estudios Monetarios Latino-Americanos, 1961. Pp. 134.

KAPOOR, A. AND CHAND, S. *Major industries of India*. Know India ser. no. 4. Delhi: Metropolitan Book Co., 1959. Pp. 200.

KNORR, K. AND BAUMOL, W. J., ed. *What price economic growth?* Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. x, 174. Paper, \$1.95.

Contributions by: W. J. Baumol, S. T. Beza, W. G. Bowen, W. Carmichael, K. Knorr, J. Markham, G. Patterson, R. E. Quandt and S. Verba.

LEDUC, G., LE PORTZ, Y. AND OTHERS. *Les problèmes de l'investissement dans les pays d'Outre-Mer—Algérie-Tunisie-Maroc-Afrique-Occidentale et Equatoriale-Sud-Vietnam et Cambodge*. Cahiers I.S.E.A., no. 109, ser. F., no. 16. Paris: Inst. Sci. Econ. Appliquée, 1961. Pp. 206.

LUZZATTO, G. *An economic history of Italy—from the fall of the Roman Empire to the beginning of the sixteenth century*. New York: Barnes & Noble, 1961. Pp. vii, 180. \$5.

MARNATA, F. *Les loyers des bourgeois de Paris 1860-1958. Recherches sur l'économie française*, no. 5. Paris: A. Colin, 1961. Pp. x, 118. NF 8.

MAWRIZKI, S. *L'industrie lourde en Union Soviétique*. Geneva: E. Droz, 1961. Pp. 155. 16 sw. fr.

MOSCOVICI, S. *Reconversion industrielle et changements sociaux*. Cahiers de Fond. Nat. Sci. Pol. no. 112. Paris: A. Colin, 1961. Pp. 338. NF 19.50.

PASQUIER, A. *L'économie du Portugal—données et problèmes de son expansion*. Coll. d'études écon. no. 40. Paris: R. Pichon and R. Durand-Auzias [1961]. Pp. iv, 234. NF 19.70.

PERROT, M. *Le mode de vie des familles bourgeoises 1873-1953. Recherches sur l'écon. française*, no. 4. Paris: A. Colin, 1961. Pp. viii, 300. NF 19.

SPULBER, N., ed. *Study of the Soviet economy—direction and impact of Soviet growth—teaching and research in Soviet economics*. Indian Univ. pub. Russian and East European ser. vol. 25. Bloomington: Indiana Univ., 1961. Pp. xiii, 169. \$3.

TABORSKY, E. *Communism in Czechoslovakia 1948-1960*. Princeton: Princeton Univ. Press, 1961. Pp. xii, 628. \$12.50.

TENENTI, A. *Venezia e i corsari 1580-1615*. Bari: Laterza, 1961. Pp. 204, L. 1400.

VOGEL, R., ed. *Die Donau in ihrer geschichtlichen, wirtschaftlichen und kulturellen Bedeutung*. Papers presented at the Internationale Hochschulwoche in Regensburg, October 24-27, 1960. Munich: Südosteuropa-Verlagsgesellschaft, 1961. Pp. x, 187. DM 15.80.

WADDELL, D. A. G. *British Honduras—a historical and contemporary survey*. New York: Oxford Univ. Press for Royal Inst. of Internat. Affairs, 1961. Pp. vii, 151. \$2.90.

WRIGLEY, E. A. *Industrial growth and population change—a regional study of the coal-*

- field areas of North-West Europe in the later nineteenth century. New York: Cambridge Univ. Press, 1961. Pp. xi, 193. \$6.
- YAMADA, I. Theory and application of interindustry analysis. Econ. research ser. no. 4. Tokyo: Kinokuniya Bookstore Co. for Inst. Econ. Research, Hitotsubashi Univ., 1961. Pp. 254.
- L'economia italiana dal 1861 al 1961. Studi nel primo centenario dell' Unità d'Italia. Milan: A. Giuffrè, 1961.
Contributions by several authors.
- Economic Indicators*. A monthly report on the Hawaiian economy. Honolulu: Dept. Econ. Research, First Nat. Bank of Hawaii, 1961. Pp. 16.
- I fattori culturali dello sviluppo economico. Milan: Vita e Pensiero, 1960. Pp. 500.
Contributions by several authors.
- Industrialisierung ländlicher Räume. Vol 17, Raum und gewerbliche Wirtschaft 1. Akademie für Raumforschung und Landesplanung. Hannover: Gebrüder Jänecke Verlag, 1961. Pp. xi, 148, maps. DM 24.
- Investment criteria and economic growth—papers presented at a conference sponsored jointly by the Center for International Studies and the Social Science Research Council October 15-17, 1954. Massachusetts Inst. of Tech. New York: Asia Pub. House, 1961. Pp. viii, 161.
Contributions by J. Tinbergen, P. N. Rosenstein-Rodan, A. O. Hirschman, E. E. Hagen, G. Grossman and W. Fellner.
- Jobs and growth—an "American economic performance budget" to gear our potentials to our needs. Washington: Conf. on Econ. Progress, 1961. Pp. 92. 50c.
- A measure of inflation in Pakistan 1951-60. Monogr. in econ. develop. no. 4. Karachi: Inst. of Develop. Econ., 1961. Pp. 113.
- Piani de sviluppo in Italia dal 1945 al 1960. Milan: A Giuffrè, 1961. Pp. 360.
Contributions by several authors.
- Il progresso tecnologico e la società italiana—aspetti di teoria e politica economica. Milan: A. Giuffrè for Centro Nazionale di Prevenzione e Difesa Sociale, 1961. Pp. 842. L. 5.000.
A collection of 29 essays by as many authors. Most of the papers are in Italian (but those by Demaria and Vito are translated into English); one (by Walter Hoffman) is in English; and one (by François Perroux) is in French. The four papers by these authors are on the general subject, and are introductory to the two main sections of the volume—one on "Technical Progress, Investment, and Distribution of Income"; the other on "Technical Progress, Market Forms, Commercial Structure, Credit, Finance, and Fiscal Policy."
- Public financial aid to developing countries. Research works ser. no. 1. Rome: General Confederation of Italian Indus., 1961. Pp. xi, 89. \$1.40.
- Sweden's economy 1960. Stockholm: Svenska Handelsbanken, 1961. Pp. 57.
- United States of America monetary and economic situation, 1951-1960. Basle: Bank for Internat. Settlements, 1961. Pp. 38.

Statistical Methods; Econometrics; Social Accounting

- FERRIER, J. Statistiques et probabilités dans l'administration des entreprises publiques et privées. Paris: Eyrolles, 1961. Pp. 256. NF 27.
- LA VOLPE, G. Sistema di contabilità nazionale. Struttura dei finanziamenti e dei pagamenti dell'Italia. Vol 2. Milan: Feltrinelli, 1960.
- ÖHLSSON, I. On national accounting. Stockholm: Nat. Inst. Econ. Research; Almqvist & Wiksell, distrib., 1961. Pp. vii, 353. SKr. 32; paper, SKr. 25.
- PIATIER, A. Statistique et observation économique. Vol 1, Méthodologie—statistique. Vol 2, Econometrie—conjoncture—comptabilité nationale. Paris: Presses Univ. de France, 1961. Pp. 972. NF 20; 22.

- RICOSSA, S. *Programmazione lineare*. Turin: Boringhieri, 1961. Pp. 111.
- ROGERS, A. C. *Graphic charts handbook*. Washington: Public Affairs Press, 1961. Pp. iv, 189. \$6.
- VAJDA, S. *Mathematical programming*. Reading, Mass.: Addison-Wesley, 1961. Pp. ix, 310. \$8.50.
- WEISS, L. *Statistical decision theory*. New York: McGraw-Hill, 1961. Pp. viii, 195. \$7.50.
- Congressional district data book (districts of the 87th Congress)—a statistical abstract supplement. Washington: Supt. Docs., 1961. Pp. xxv, 150. \$1.
- Government price statistics. Hearings before the Subcommittee on Economic Statistics, Joint Economic Committee, 86th Cong., 1st sess., Pt. 2, May 1-5, 1961. Washington: Supt. Docs., 1961. Pp. 792.
- . Report of the Subcommittee on Economic Statistics to the Joint Economic Statistics of the Joint Economic Committee, 87th Cong. 1st sess., July 21, 1961. Washington: Supt. Docs., 1961. Pp. v, 13. 10c.
- Statistical abstract of the United States, 82nd ed. Washington: Dept. of Commerce, 1961. Pp. xii, 1037. \$3.50.

Economic Systems; Planning and Reform; Cooperation

- BYLLESBY, L. *Observations on the sources and effects of unequal wealth with propositions towards remedying the disparity of profit in pursuing the arts of life and establishing security in individual prospects and resources*. New York: Russell & Russell, 1961. Pp. 195. \$15.
- First pub. by L. J. Nichols, New York, 1826. According to Joseph Dorfman (who provides an introduction to the reprint of Byllesby's 1826 essay), there appeared in the United States after 1814 quite a number of popular essays inspired by Robert Owen's New Lanark experiment. The present work was, he says, "the first systematic American treatise" in this stream of thought, and it differed "... in certain striking respects from the characteristic Owenite literature."
- MUNBY, D. L. *God and the rich society—a study of Christians in a world of abundance*. New York: Oxford Univ. Press, 1961. Pp. 209. \$5.50.
- PALOMBA, G. *L'espansione capitalistica*. Naples: Giannini, 1961. Pp. xlii, 323.
- STOJANOVIC, R. *Teorija privrednog razvoja u socijalizmu*. (The theory of economic development in socialism.) Belgrade: Haucna Knjiga, 1960. Pp. 326.
- VOORHIS, J. *American cooperatives—where they come from, what they do, where they are going*. New York: Harper, 1961. Pp. xi, 88. \$4.75.

Business Fluctuations

- DE VERDIERE, G. C. *Conjoncture et monnaie. Recherches econ. no. 5*. Paris: Sirey, 1960. Pp. iv, 127.
- KUCZYNSKI, J. *Die Geschichte der Lage der Arbeiter unter dem Kapitalismus. Part I, Die Geschichte der Lage der Arbeiter in Deutschland von 1789 bis zur Gegenwart. Vol. II: Dokumente und Studien zu Band 2, and, Studien zur Geschichte der zyklischen Überproduktionskrisen in Deutschland, 1825 bis 1866. Vol. 12: Dokumente und Studien A zu Band 3, and, Studien zur Geschichte der zyklischen Überproduktionskrisen in Deutschland, 1873 bis 1914*. Berlin: Akademie Verlag, 1961. Pp. viii, 199; vii, 210. DM 16; DM 16.
- SPENCER, M. H., CLARK, C. G. AND HOGUET, P. W. *Business and economic forecasting—an econometric approach*. Homewood, Ill.: Irwin, 1961. Pp. xii, 412. \$7.95.
- Management action to promote business stability. Committee on Economic Policy. Washington: U.S. Chamber of Commerce, 1961. Pp. 31.
- Unemployment situation and outlook. Hearings before the Subcommittee on Employment and Manpower of the Senate Committee on Labor and Public Welfare, 87th

Cong., 1st sess. Pittsburgh; Newark, N.J.; Chester, Pa.; Providence, R.I. and Atlantic City-Bridgeton, N.J., Feb. 22-27, March 2-9, 1961. Washington: Supt. Docs., 1961. Pp. 528.

Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

BASU, S. K. A survey of contemporary banking trends. 2nd rev. ed. Calcutta: The Book Exchange, 1961. Pp. xiv, 500. Rs 18.

BROVEDANI, B. Bases analíticas de la política monetaria. México: Centro de Estudios Monetarios Latino-Americanos, 1961. Pp. 144.

CARVALE, G. Il credito al consumo. Turin: UTET, 1960. Pp. 280.

CONFALONIERI, A. Il credito industriale. Milan: A. Giuffrè, 1960. Pp. 298.

HALM, G. N. Economics of money and banking. Rev. ed. Homewood, Ill.: Irwin, 1961. Pp. xvii, 551. \$7.95.

HAWTREY, R. The pound at home and abroad. New York: Longmans, Green, 1961. Pp. 212. \$5.

"The first part of this book consists of a series of papers covering the period 1954-9, which appeared in the *Bankers' Magazine*, and expressed my views on the current monetary situation from time to time. . . .

"The second part is composed of papers submitted to the Radcliffe Committee and the Council on Prices, Productivity and Incomes, together with my comments on the Report of the former and the Evidence taken by it."

KLAMAN, S. B. The postwar residential mortgage market. Princeton: Princeton Univ. Press for Nat. Bur. Econ. Research, 1961. Pp. xxxi, 301. \$7.50.

KOCK, K. Kreditmarknad och räntepolitik 1924-1958. Vol. 1. Uppsala 1961. Pp. 222.

MASSOT, J. Les banques et l'investissement en Allemagne Occidentale. Coll. d'études écon., no. 39. Paris: Libr. gén. de Droit et de Jurisprudence, 1960. Pp. xviii, 166. NF 15.

SONNE, H. C. Supplementary statement to the report of the Commission on Money and Credit. Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. v, 30. 50c.

Aspectos monetarios de las economías latino-americanas 1960. México: Centro de Estudios Monetarios Latino-Americanos, 1961. Pp. 282.

Bank of Greece report for the year 1960. Athens: Bank of Greece, 1961. Pp. 60.

Federal Home Loan Bank act amendments. Hearing before the Subcommittee no. 1 of the House Committee on Banking and Currency, 87th Cong., 1st sess., July 13. Washington: Supt. Docs., 1961. Pp. 64.

The federal revenue system: facts and problems, 1961. Materials assembled by the committee staff for the Joint Economic Committee. Washington: Supt. Docs., 1961. Pp. 290.

Modern money mechanics—a workbook on deposits, currency and bank reserves. Chicago: Federal Reserve Bank, 1961. Pp. 31.

Review of annual report of the Federal Reserve System for the year 1960. Hearings before the Joint Economic Committee, 87th Cong., 1st sess., June 1 and 2, 1961. Washington: Supt. Docs., 1961. Pp. iii, 174. 45c.

Public Finance; Fiscal Policy

ANDREADES, A. M. Storia delle finanze greche—dai tempi eroici fino all'inizio dell'età greco-macedonica. Storia della fin. pub. no. 1. Padua: CEDAM, 1961. Pp. lxvi, 491. L. 6.500.

Originally pub. in Greek 1928; transl. by F. De S. Brouwer with G. Iannitto and E. Lama.

BLOCH-LAINE, F. AND DE VOGUE, P. Le trésor public et al mouvement général des fonds. Paris: Presses Univ. de France, 1960. Pp. 376. NF 20.

- BREAK, G. F. The economic impact of federal loan insurance—a special project report. Washington: Nat. Planning Assoc., 1961. Pp. 271.
- GANCEMI, L. *Finanza pubblica*, vol. 1. Naples: Giannini, 1961. Pp. xii, 470. L. 6.000.
- LATHAM, D., ATKESON, T. C. AND OTHERS. Management's stake in tax administration. Symposium conducted by the Tax Institute September 29-30, 1960. Princeton: Tax Inst., 1961. Pp. x, 260.
- MOSHER, F. C. WITH KIDD, K. R. AND BUSH, G. W. Recent trends in governmental finances in the United States. Berkeley: Univ. of California Bur. Pub. Admin., 1961. Pp. 76. \$2.
- NEUMARK, F. *Steuerpolitik in der Überflussesgesellschaft*. Berlin: Duncker & Humblot, 1961. Pp. 31. DM 3.60.
- PESENTI, A. *Lezioni di scienza della finanze e diritto finanziario*. Rome: Ed. Riuniti, 1961. Pp. 303.
- SACKS, S. AND HELLMUTH, W. F., JR. WITH EGAND, L. M. AND OTHERS. Financing government in a metropolitan area—the Cleveland experience. New York: The Free Press of Glencoe, 1961. Pp. xxvii, 387. \$10.
- STAMMATI, G. *La finanza pubblica*. Bologna: Zanichelli, 1960. Pp. 352.
- STEGE, W. A. Simulation and tax analysis—a research proposal. Santa Monica: RAND, 1961. Pp. 29.
- THOMPSON, J. S. Taxation's new frontier: a businessman's study of dignified vs contemptible taxation. New York: Robert Schalkenbach Foundation, 1961. Pp. 96. \$1.
- "The counties should meet their own operating expenses from an agreed portion of the rental value of their area, the balance being paid to the state, which in turn should meet its expenses from an agreed portion and pay the balance as its 'dues' to the association—the United States Government.
- "If this system did not bring sufficient revenue . . . we could always reimpose some of the taxes we had hoped to abolish forever . . ." (From Ch. 19.)
- VON GERSDORFF, R. *Portugals Finanzen—Geschichtlicher Überblick die Finanzreformen Prof. Salazars Steuer- und Staatsschuldenwesen*. Bielefeld: Ernst and Werner Gieseke, 1961. Pp. xii, 280. DM 18.80.
- YOCUM, J. C. Retailers' costs of sales tax collection in Ohio. Bur. Bus. Research monogr. no. 100. Columbus, Ohio: Bur. Bus. Research, College of Commerce and Admin., Ohio State Univ., 1961. Pp. xxi, 163. \$5.
- Internal revenue code of 1954, as amended and in force on January 3, 1961. Prepared by the staff of the Joint Committee on Internat. Revenue Taxation. Washington: Supt. Docs., 1961. Pp. 1148.
- President's 1961 tax recommendations. Hearings before the House Committee on Ways and Means, on the tax recommendations of the President contained in his message transmitted to Congress, Apr. 20, 1961, 87th Cong., 1st sess., May 3-5, 8-11, 12, 15-19, 22-26, 31, June 5-9. Washington: Supt. Docs., 1961. 4 vols.

International Economics

- AUBREY, H. G. WITH DARMSTADTER, J. Coexistence: economic challenge and response. Washington: Nat. Planning Assoc., 1961. Pp. xiv, 323. \$5.
- HABERLER, G. A survey of international trade theory. Spec. papers in internat. econ. no. 1. Princeton: Internat. Fin. Section, Dept. of Econ., Princeton Univ., 1961. Pp. 78. \$1.
- HANSEN, B. Foreign trade credits and exchange reserves—a contribution to the theory of international capital movements. Contrib. to econ. anal. no. 23. Amsterdam: North Holland Pub. Co., 1961. Pp. 144.
- LEKACHMAN, R., ed. National policy for economic welfare at home and abroad. New York: Russell & Russell, 1961. Pp. xii, 366. \$7.50.
- A series of lectures given at the Conference on National Policy for Economic Welfare

- at Home and Abroad, held at Columbia University in 1954 on the occasion of the 200th anniversary of the founding of the University.
- LUTZ, F. A. International payments and monetary policy in the world today. Wicksell lectures 1961. Stockholm: Almqvist & Wiksell, 1961. Pp. 41. SKr. 5.50.
- PINCUS, J. The industrial development laws of Central America. Washington: Tech. Aids Branch, Office of Indus. Resources, Internat. Coop. Admin., 1961. Pp. 90.
- SAINT MARC, P. La France dans la C.E.C.A.—une expérience de planifications multiples du charbon et de l'acier. Cahiers de Fond. Nat. Sci. Pol. no. 114. Paris: A. Colin, 1961. Pp. 438. NF 24.
- SINGER, J. D. Financing international organization—the United Nations budget process. The Hague: Nations Nijhoff, 1961. Pp. xvi, 185. f 14.50.
- STREETEN, P. Economic integration—aspects and problems. European aspects ser. B: econ. no. 5. Leyden: A. W. Sythoff, 1961. Pp. 150. f 12.
- A thesis submitted to the Council of Europe, Strasbourg, in fulfilment of the terms of a research fellowship.
- ZOLOTAS, X. Towards a reinforced gold exchange standard. Papers and lectures no. 7. Athens: Bank of Greece, 1961. Pp. 19.
- An act for international development—fiscal year 1962. A program for the decade of development—summary presentation by President's Task Force on Foreign Economic Assistance, June 1961. Dept. of State, gen. foreign pol. ser. 169. Washington: Supt. Docs., 1961. Pp. 189.
- The economics of Soviet trade—USSR. Washington: Joint Pub. Research Svce., 1961. Pp. 181.
- Examination of economic and technical assistance program for Brazil, International Cooperation Administration, Department of State, fiscal years 1955-1959: report to the Congress of the United States by the Comptroller General. Washington: General Accounting Office, 1960. Pp. 45.
- First annual report of the European Free Trade Association for the period ending 1st July, 1961. Geneva: European Free Trade Assoc., 1961. Pp. 40.
- Foreign commerce. Hearings before the Senate Committee on Commerce, 87th Cong., 1st sess., June 21, 22, and July 11-24, 1961. Washington: Supt. Docs., 1961. Pp. 213.
- Foreign operations appropriations for 1962. Pt. 1, Overall general statements. Hearings before the Subcommittee of the House Committee on Appropriations, 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. 224.
- The General Agreement on Tariffs and Trade. Dept. of State commercial policy ser. Washington: Supt. Docs., 1961. Pp. 74. 25c.
- International development and security. Pt. 1 and 2. Hearings before the Senate Committee on Foreign Relations, 87th Cong., 1st sess., May 31-June 27, 1961. Washington: Supt. Docs., 1961.
- The International Development and Security act. Pt. 1, 2 and 3. Hearings before the House Committee on Foreign Affairs, 87th Cong., 1st sess., June 7-29 and July 6. Washington: Supt. Docs., 1961. Pp. 1524.
- International Finance Corporation. Hearing before Subcommittee no. 1 of the House Committee on Banking and Currency, May 10, 1961, 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. 33.
- International payments imbalances and need for strengthening international financial arrangements. Hearings before the Subcommittee on International Exchange and Payments of the Joint Economic Committee, May 16, June 19-21, 1961. Washington: Supt. Docs., 1961. Pp. iii, 340. \$1.
- Report of the Subcommittee on International Exchange and Payments to the Joint Economic Committee, 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. vi, 26. 15c.
- Mutual security act of 1961. Report of the House Committee on Foreign Affairs on H.R.

- 8400 to promote the foreign policy, security and general welfare of the United States by assisting peoples of the world in their efforts toward economic and social development and internal and external security, and for other purposes. 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. 191.
- Rapport de l'Institut Belgo-Luxembourgeois du Change pour l'année 1960 présenté par le président au nom du Conseil. Brussels: L'Institut Belgo-Luxembourgeois du Change, 1961. Pp. 23.
- Special report of the National Advisory Council on the proposed International Development Association. Washington: Nat. Advisory Council on Internat. Monetary and Fin. Problem, 1960. v.p.
- U.S. foreign assistance, and assistance from international organizations; obligations and other commitments, July 1, 1945 through June 30, 1960. Washington: Office of Stat. and Rept., U.S. Internat. Coop. Admin., 1961. Pp. 109.

Business Finance; Investment and Security Markets; Insurance

- BADGER, R. E., TORGERSON, H. W. AND GUTHMANN, H. G. Investment principles and practices. 5th ed. Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. xxv, 694. \$7.95.
- JOHANSSON, S.-E. Skatt-investeringsvärdering. (Wealth, investment, value.) Stockholm, 1961. Pp. 257.
- MEHR, R. I. AND OSLER, R. W. Modern life insurance—a textbook of income insurance. 3rd ed. New York: Macmillan, 1961. Pp. xiv, 754. \$8.50.
- RUDLOFF, M. P. L'investissement et le demande—essai sur la théorie de l'investissement induit. Observation écon., no. 19 Paris: S.E.D.E.S., 1960. Pp. 280. NF 11.
- Capital expansion and capacity in postwar manufacturing. Stud. in bus. econ. no. 72. New York: Nat. Indus. Conf. Board, 1961. Pp. 88.
- Life insurance fact book 1961. New York: Inst. of Life Insurance [1961]. Pp. 128.

Business Organization; Managerial Economics; Marketing; Accounting

- AUBERT-KRIER, J., BENOIT, J. AND THIBERT, R. B. La prévision et le contrôle de gestion. Paris: Dunod, 1961. Pp. x, 157. NF 15.
- BÄSS, F. M., BUZZELL, R. D. AND OTHERS, ed. Mathematical models and methods in marketing. Homewood, Ill.: Irwin, 1961. Pp. xi, 545. \$8.50.
- BEDFORD, N. M., PERRY, K. W. AND WYATT, A. R. Advanced accounting: an organizational approach. New York: John Wiley, 1961. Pp. xviii, 781. \$9.95.
- BROOM, H. N. AND LONGENECKER, J. G. Small business management. Cincinnati: South-Western, 1961. Pp. viii, 728.
- Instructor's manual to accompany text available.
- CHARNES, A. AND COOPER, W. W. Management models and industrial applications of linear programming. Vol 1. New York: Wiley, 1961. Pp. xxiii, 471. \$11.75.
- CREAMER, D. Capital expansion and capacity in postwar manufacturing. Stud. in bus. econ. no. 72. New York: Nat. Indus. Conf. Board, 1961. Pp. 88. \$2.50; \$12.50, non-Associates.
- DORIAN, M. Dupont de Nemours—de la poudre au nylon. Hist. des grandes entreprises, no. 4. Paris: Plon, 1961. Pp. 194. NF 9.25.
- EDWARDS, E. O. AND BELL, P. W. The theory and measurement of business income. Berkeley: Univ. of California Press, 1961. Pp. xv, 323. \$7.50.
- EELLS, R. AND WALTON, C. Conceptual foundations of business—an outline of the major ideas sustaining business enterprise in the Western world. Homewood, Ill.: Irwin, 1961. Pp. x, 533. \$7.
- FETTER, R. B. AND DALLECK, W. C. Decision models for inventory management. Homewood, Ill.: Irwin, 1961. Pp. x, 123. \$5.75.

- GOLDBERG, L. Concepts of depreciation. Melbourne: Law Book Co. of Australasia, 1960. Pp. iv, 130. 30s.
- HENDRIKSEN, E. S. Price-level adjustments of financial statements—an evaluation and case study of two public utility firms. Bur. econ. and bus. research bull. no. 35. Pullman: Washington State Univ. Press, 1961. Pp. viii, 134. \$4.
- HOOS, I. R. Automation in the office. Washington: Public Affairs Press, 1961. Pp. 138. \$4.50.
- KRUPP, S. Pattern in organization analysis: a critical examination. Philadelphia: Chilton, 1961. Pp. xiv, 201. \$5.
- MANNE, A. S. Economic analysis for business decisions. New York: McGraw-Hill, 1961. Pp. x, 177. \$6.95.
- MARTIN, A. L. La prévision économique et la direction de l'entreprise. Paris: Edit. de l'Entreprise moderne, 1961. Pp. 316. NF 49.
- MAYER, K. B. AND GOLDSTEIN, S. The first two years: problems of small firm growth and survival. Small bus. research ser. no. 2. Washington: Small Bus. Admin., 1961. Pp. x, 233. \$1.
- Based on the detailed observation of 81 small retail and service firms over a 2-year period.
- ONIDA, P. Economia d'azienda. Turin: UTET, 1960.
- PATTON, A. Men, money and motivation—executive compensation as an instrument of leadership. New York: McGraw-Hill, 1961. Pp. 233.
- THAYER, L. O. Administrative communication. Homewood, Ill.: Irwin, 1961. Pp. xiv, 344. \$6.50.
- VORIS, W. Production control—text and cases. Rev. ed. Homewood, Ill.: Irwin, 1961. Pp. xv, 423. \$7.95.
- Contributions to scientific research in management—the proceedings of the scientific program following the dedication of the Western Data Processing Center, Graduate School of Business Administration, University of California, Los Angeles, Jan. 29-30, 1959. Los Angeles: Div. of Research, Grad. School of Bus. Admin., Univ. of Calif., Los Angeles, 1959. Pp. ix, 172. \$2.50.

Industrial Organization; Government and Business; Industry Studies

- BRADY, R. A. Organization, automation, and society—the scientific revolution in industry. Berkeley: Univ. of California Press, 1961. Pp. xiv, 481. \$8.50.
- BURN, D. The steel industry 1939-1959—a study in competition and planning. New York: Cambridge Univ. Press, 1961. Pp. xvi, 728. \$14.50.
- BUSHNELL, J. A. Australian company mergers 1946-1959. New York: Cambridge Univ. Press; Melbourne: Melbourne Univ. Press, 1961. Pp. xii, 223. \$7.50.
- FAUQUET, L. G. Histoire de la rayonne et des textiles synthétiques. Etudes et mémoires, no. 47. Paris: A. Colin, 1960. Pp. 271.
- FERGUSON, A. R., LERNER, E. M. AND OTHERS. The economic value of the United States Merchant Marine. Evanston, Ill.: Transportation Center, Northwestern Univ., 1961. Pp. xxii, 545.
- IULO, W. Electric utilities—costs and performance: a study of inter-utility differences in the unit electric costs of privately owned electric utilities. Bur. econ. and bus. research bull. no. 34. Pullman: Washington State Univ. Press, 1961. Pp. 180. \$7.50.
- NEALE, A. D. The antitrust laws of the United States of America—a study of competition enforced by law. Nat. Inst. Econ. and Soc. Research, Econ. and soc. stud. 19. Cambridge, Eng.: University Press, 1960. Pp. 516.
- PECK, M. J. Competition in the aluminum industry 1945-1958. Cambridge: Harvard Univ. Press, 1961. Pp. x, 227. \$5.25.
- RICHMOND, S. B. Regulation and competition in air transportation. New York: Columbia Univ. Press, 1961. Pp. vii, 309. \$7.50.

- SCHENKER, E. General cargo capacity at Wisconsin lake ports. Wisconsin commerce rept., vol. 6 (2). Madison: Bur. Bus. Research and Svce., School of Commerce, Univ. of Wisconsin, 1961. Pp. 94. \$1.15.
- STELZER, I. M. Selected antitrust cases—landmark decisions in federal antitrust. Rev. ed. Homewood, Ill.: Irwin, 1961. Pp. x, 242. \$4.50.
- STOCKING, G. W. Workable competition and antitrust policy. Nashville: Vanderbilt Univ. Press, 1961. Pp. vii, 451. \$7.50.
- TEITELBAUM, P. D. Energy production and consumption in the United States: an analytical study based on 1954 data. Washington: Dept. of the Interior, Bur. of Mines, 1961. Pp. 145.
- VANCE, S. Industrial structure and policy. Englewood Cliffs, N.J.: Prentice-Hall, 1961. Pp. 529.
- VITO, F., ed. Concorrenza e monopolio nell'economia italiana. Milan: Vita e Pensiero, 1960. Pp. 129.
- Contributions by: S. Lombardini, F. Feroldi, G. Mazzocchi, L. Frey and O. Garavello.
- Administered prices. Pt. 27 and 28, Price fixing and bid rigging in the electrical manufacturing industry. Hearings before the Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary, 87th Cong., 1st sess., April 13-28 and May 2; May 3-18, June 5-23, 1961. Washington: Supt. Docs., 1961. Pp. 693; 765.
- Federal-aid-to-airport program. Hearings before the Aviation Subcommittee of the Senate Committee on Commerce, 87th Cong., 1st sess., June 12-14, 1961. Washington: Supt. Docs., 1961. Pp. 359.
- Federal-aid-highway financing. Hearings before the House Committee on Ways and Means, 87th Cong., 1st sess., Mar. 14-21. Washington: Supt. Docs., 1961. Pp. 731.
- Independent Regulatory Agencies act of 1961. Hearings before the House Committee on Interstate and Foreign Commerce, 87th Cong., 1st sess., June 6-9, 1961. Washington: Supt. Docs., 1961. Pp. 166.
- Intergovernmental responsibilities for mass transportation facilities and services in metropolitan areas. Washington: U.S. Advisory Comm. on Intergovernmental Rel., 1961. Pp. 54.
- Monopoly problems in regulated industries. Pt. 3, vol. 1, Ocean freight industry. Hearings before the Antitrust Subcommittee of the House Committee on the Judiciary, 87th Cong., 1st sess., Mar. 7-16, 1961. Washington: Supt. Docs., 1961. Pp. 805.
- Premier notification. Hearings before the Antitrust Subcommittee of the House Committee on the Judiciary, 87th Cong., 1st sess., Apr. 27, 28, May 3 and 4, 1961. Washington: Supt. Docs., 1961. Pp. 277.
- To provide for the operation of steamship conferences. Hearings before the special Subcommittee on Steamship Conferences, House Committee on Merchant Marine and Fisheries, 87th Cong., 1st sess., Mar. 20-29, Apr. 10-28, 1961. Washington: Supt. Docs., 1961. Pp. 574.
- Report—Royal Commission on the Automotive Industry. V. W. Bladen, Chairman. Ottawa: The Queen's Printer, 1961. Pp. 110. \$2.
- Report of a study group. Conference on Transportation Research, Woods Hole, Mass., 1960. Washington: Nat. Acad. Sci., Nat. Research Council, 1960. Pp. 88.
- Small Business Administration—1961. Annual review of the operations of the Small Business Administration. Hearings before the Senate Committee on Small Business, 87th Cong., 1st sess., June 21 and 22, 1961. Washington: Supt. Docs., 1961. Pp. 103.
- Small Business Investment act—1961. Hearings before a subcommittee of the Senate Committee on Banking and Currency, 87th Cong., 1st sess., July 31 and Aug. 2, 1961. Washington: Supt. Docs., 1961. Pp. 151.
- Small Business Investment act amendments of 1961. Hearings before Subcommittee no. 2 of the House Committee on Banking and Currency, 87th Cong., 1st sess., Aug. 1-4, 1961. Washington: Supt. Docs., 1961. Pp. 130.

Study of cost structures and cost finding procedures in the regulated transportation industries. Washington: R. L. Banks & Assoc. for U.S. Dept. of Commerce, 1959. Var. pp.

Land Economics; Agricultural Economics; Economic Geography; Housing

ANDREWS, S. The farmer's dilemma. Washington: Public Affairs Press, 1961. Pp. vii, 184. \$4.50.

BAUM, E. L., DIESSLIN, H. G. AND HEADY, E. O., ed. Capital and credit needs in a changing agriculture. Ames: Iowa State Univ. Press, 1961. Pp. xix, 406. \$4.95.

BLONDEL, F. L'économie du sous-sol dans les pays sous-développés. Paris: Presses Univ. de France, 1961. Pp. 91.

CEPEDE, M. Agriculture et alimentation en France durant la IIème guerre mondiale. Paris: Edit. Génin, 1961. Pp. 511. NF 40.

DUMONT, R. Terres vivantes—voyage d'un agronome autour du monde. Paris: Plon, 1961. Pp. 352. NF 17.80.

EDWARDS, D. Report on an economic study of small farming in Jamaica. Kingston: Inst. of Soc. and Econ. Research, Univ. College of the West Indies, 1961. Pp. 370. \$4.

GAROFALO, S. Il frutto di alcuni investimenti di lungo periodo in agricoltura. Milan: A. Giuffrè, 1960. Pp. 89.

HEADY, E. O., BAKER, C. B., DIESSLIN, H. G., KEHRBERG, E. AND STANFORTH, S., ed. Agricultural supply functions—estimating techniques and interpretation. Ames: Iowa State Univ. Press for North Central Farm Management Research Com., 1961. Pp. viii, 305. \$3.95.

LEARN, E. W. AND HOUCK, J. P., JR. An evaluation of market development projects in West Germany under section 104(a) of Public Law 480. Station bull. 455. [Minneapolis]: Agric. Experiment Station, Univ. of Minnesota, 1961. Pp. 79.

MITCHELL, R. B. Metropolitan planning for land use and transportation—a study prepared under contract with the Special Assistant to the President for Public Works Planning. Washington: Supt. Docs., 1961. Pp. 47.

SPENGLER, J. J., ed. Natural resources and economic growth. Papers presented at a conference held at Ann Arbor, Michigan, April 7-9, 1960, under joint sponsorship of Resources for the Future Inc. and SSRC Committee on Economic Growth. Washington: Resources for the Future, 1961. Pp. x, 306. \$3.50.

Agricultural act of 1961: wheat program for 1962. Ser. E, Pt. 10. Hearings before the Subcommittee on Wheat of the House Committee on Agriculture, 87th Cong., 1st sess., June 14 and 15, 1961. Washington: Supt. Docs., 1961. Pp. 79.

The coffee industry in Papua-New Guinea—an economic survey. Canberra: Bur. of Agric. Econ., 1961. Pp. 155, mimeo.

Compendio del segundo censo nacional del café, cosecha 1957-1958. San Salvador: Dirección General de Estadística y Censos, República de El Salvador, C. A., 1961. Pp. viii, 67.

Farm policy for the sixties—a statement by the NPA Agriculture Committee and a report by Lauren K. Soth. Special rept. no. 59. Washington: Nat. Planning Assoc., 1961. Pp. vi, 26. \$1.

Housing act of 1961. Report together with individual and supplemental views. Senate Committee on Banking and Currency, 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. 111.

———. Report together with minority views. House Committee on Banking and Currency, 87th Cong., 1st sess. Washington: Supt. Docs., 1961. Pp. 171.

Price support and production adjustment activities. Twenty-sixth report by the Committee on Governmental Operations, 86th Cong., 2nd sess. Washington: Supt. Docs., 1960. Pp. vi, 85. Free copy may be had from Intergovernmental Relations Subcommittee, Home Office Bldg., Washington 25, D.C.

Production yearbook. Vol. 14, 1960. In English and French with a Spanish glossary. Pre-

- pared by the Statistics Div., UN Food and Agric. Organization. New York: Columbia Univ. Press, 1961. Pp. xv, 507.
- Il reddito agricolo e l'industrializzazione dell'agricoltura. Atti del X Convegno di studi di economia e politica industriale, Bologna, 7-9 aprile 1961. *Riv. di Pol. Econ.*, June 1961. Rome: Amministrazione della Riv. Pol. Econ., 1961. Pp. 423.
- Seminar on cost studies in agriculture. Ser. 3. Bombay: Indian Soc. of Agric., 1961. Pp. vii, 177. Paper, Rs 8.
- Water: measuring and meeting future requirements. Western Resources Conference—2nd, University of Colorado, 1960—edited by H. L. Amoss. Western resources papers, 2. Boulder: Univ. Colorado Press, 1961. Pp. 261.

Labor Economics

- BILLERBECK, K. Mobilization of manpower potential in Asia and Africa. Hamburg: Hamburg Archives of World Economy, 1961. Pp. 169. Paper, DM 16.
- BLOOM, G. F. AND NORTHRUP, H. R. Economics of labor relations. 4th ed. Homewood, Ill.: Irwin, 1961. Pp. xvii, 881. \$8.
- CHABERT, A. Les salaires dans l'industrie française: les textiles. Etudes et mémoires, no. 46. Paris: A. Colin, 1960. Pp. xii, 291. NF 20.
- GAVETT, T. W. Wage differentials in West Virginia. West Virginia Univ. bull. ser. 61 no. 12-1. Morgantown: Bur. Bus. Research, College of Commerce, West Virginia Univ., 1961. Pp. 50.
- GRODIN, J. R. Union government and the law: British and American experiences. Monogr. ser. no. 8. Los Angeles: Inst. of Indus. Rel., Univ. of California, 1961. Pp. 209. \$3.
- HART, W. R. Collective bargaining in the federal civil service—a study of labor-management relations in United States government employment. New York: Harper, 1961. Pp. xii, 302. \$6.50.
- MARRIOTT, R. Incentive payment systems—a review of research and opinion. 2nd rev. ed. New York: John de Graff; London: Staples, 1961. Pp. 291. \$5.50.
- NEWELL, B. W. Chicago and the labor movement—metropolitan unionism in the 1930's. Urbana: Univ. of Illinois Press, 1961. Pp. viii, 288.
- PERLMAN, M. The machinists: a new study in American trade unionism. Cambridge: Harvard Univ. Press, 1961. Pp. xvii, 333. \$7.50.
- TOLLES, N. A. AND GOLDWASSER, B. C. Labor costs and international trade. Washington: Com. Nat. Trade Policy, 1961. Pp. 43.
- Amendments to Welfare-Pension Plans Disclosure act. Hearings before the Special Subcommittee on Labor of the House Committee on Education and Labor, 87th Cong., 1st sess., May 24-31, June 1-28, 1961. Washington: Supt. Docs., 1961. Pp. 451.
- Grievance handling: a case study of a new approach. IRM no. 139. New York: Indus. Rel. Counselors, Inc., 1961. Pp. 44. \$1.50.
- Impact of automation on employment. Hearings before the Subcommittee on Unemployment and the Impact of Automation of the House Committee on Education and Labor, 87th Cong., 1st sess.—general investigation into types and causes of unemployment—Mar. 8-29, Apr. 12-25, 1961. Washington: Supt. Docs., 1961. Pp. 793.
- Manpower utilization and training. Hearings before the Subcommittee on Unemployment and the Impact of Automation of the House Committee on Education and Labor, 87th Cong., 1st sess., June 6-14, 1961. Washington: Supt. Docs., 1961. Pp. 171.
- Migratory labor. Hearings before the Subcommittee on Migratory Labor of the Senate Committee on Labor and Public Welfare, 87th Cong., 1st sess., Apr. 12-13, 1961. Washington: Supt. Docs., 1961. Pp. 458.
- The new wage and hour law. By editorial staff, Labor Relations Reporter. [Washington]: Bur. of Nat. Affairs [1961]. Pp. 129; 237.
- Proceedings of the eleventh annual Labor-Management Conference April 20-21, 1961.

- West Virginia Univ. bull. ser. 62, no. 2-3. Morgantown: Inst. of Indus. Rel., West Virginia Univ. [1961]. Pp. vi, 41.
- Report of the Committee of Experts on the Application of Conventions and Recommendations. Pt. 3, Minimum standards of social security. Pt. 4, Aspects of social evolution in present and former non-metropolitan territories. Geneva: Internat. Lab. Office, 1961. Pp. 84; 121, 75c; \$1.
- The rise of chronic unemployment—a statement by the Nat. Planning Assoc. Board of Trustees and Standing Committees. Planning pamph. no. 113. Washington: Nat. Planning Assoc., 1961. Pp. 44.
- Training of the unemployed. Hearings before the Subcommittee on Employment and Manpower of the Senate Committee on Labor and Public Welfare, 87th Cong., 1st sess., Mar. 20, 21, June 5 and 7, 1961. Washington: Supt. Docs., 1961. Pp. 309; 96.
- Youth Employment act, Youth Conservation Corps. Hearings before the Subcommittee on Employment and Manpower of the Senate Committee on Labor and Public Welfare, 87th Cong., 1st sess., June 12-23, 1961. Washington: Supt. Docs., 1961. Pp. 415.

Population; Welfare Programs; Consumer Economics

- AIRD, J. S. The size, composition, and growth of the population of mainland China. Bur. Census, Internat. pop. stat. rept., ser. P-90, no. 15. Washington: Supt. Docs., 1961. Pp. vi, 100. 35c.
- BECKER, J. M. The adequacy of the benefit amount in unemployment insurance. Kalamazoo: W. E. Upjohn Inst. for Employment Research, 1961. Pp. 64. Single copies free.
- EICHER, J. C. Consommation et épargne. Recherches écon., no. 4. Paris: Sirey, 1961. Pp. 164. NF 15.
- PETERSEN, W. Population. New York: Macmillan, 1961. Pp. xx, 652. \$7.95.
- SAUVY, A. Les limites de la vie humaine. Les grands problèmes, no. 7. Paris: Hachette, 1961. Pp. 152. NF 6.
- THOMAS, B. International migration and economic development—a trend report and bibliography. New York: Internat. Doc. Svcs., Columbia Univ. Press, 1961. Pp. 85.
- Impact of inflation on retired persons. A statement of problems, issues and approaches together with recommendations from the 1961 White House Conference on Aging prepared by the Dept. of Health, Education and Welfare Special Staff on Aging. Washington: Supt. Docs., 1961. Pp. 39.
- Modification of federal grants-in-aid for public health services. [Washington]: U.S. Advisory Comm. on Intergovernmental Rel., 1961. Var. pp.
- Voluntary health and welfare agencies in the United States—an exploratory study by an Ad Hoc Citizens Committee. New York: Schoolmaster's Press, 1961. Pp. vi, 88. \$1.

Related Disciplines

- ALEXANDER, R., ed. Sources of information and unusual services. 6th ed. A guide to information, pamphlets and services available from organizations and agencies in the United States. Arranged by subject. New York: Informational Directory Co., 1961. Pp. 84. \$2.95.
- BRYSON, G. D. American management abroad—a handbook for the business executive overseas. New York: Harper, 1961. Pp. xiii, 240. \$5.
- CAHN, E. The predicament of democratic man. New York: Macmillan, 1961. Pp. 194. \$3.95.
- COCHRAN, B. The cross of the moment. New York: Macmillan, 1961. Pp. 267. \$5.
- CORSINI, R. J., SHAW, M. E. AND BLAKE, R. R. Roleplaying in business and industry. New York: The Free Press of Glencoe, 1961. Pp. ix, 246. \$6.

- ETZIONI, A. A comparative analysis of complex organizations—on power, involvement, and their correlates. New York: The Free Press of Glencoe, 1961. Pp. xx, 366. \$8.50.
- FOURASTIÉ, J. La grande métamorphose du XXe siècle—essais sur quelques problèmes de l'humanité d'aujourd'hui. Paris: Presses Univ. de France, 1961. Pp. 223. NF 9.
- HUNT, E. F. Social science—an introduction to the study of society. 2nd ed. New York: Macmillan, 1961. Pp. xx, 887. \$8.50.
- LEONTI, B. Freedom and the law. Princeton: Van Nostrand, 1961. Pp. vii, 204. \$6. A series of lectures delivered at the Fifth Institute on Freedom and Competitive Enterprise, June 15-28, 1958, at Claremont Men's College, Claremont, Calif.
- LERNER, D., ed. Quantity and quality: the Hayden Colloquium on scientific method and concept. New York: The Free Press of Glencoe, 1961. Pp. 221. \$4.50.
- MCCLELLAND, D. C. The achieving society. Princeton: Van Nostrand, 1961. Pp. xv, 512. \$7.95.
- RESTLE, F. Psychology of judgment and choice: a theoretical essay. New York: Wiley, 1961. Pp. xiii, 235. \$6.95.
- SCHOECK, H. AND WIGGINS, J. W., ed. Relativism and the study of man. Princeton: Van Nostrand, 1961. Pp. x, 259. \$6.50.

PERIODICALS

General Economics; Methodology

- AKERMAN, J. Fyra metodologiska moment. (Four methodological moments.) *Ekon. Tids.*, June 1961, pp. 93-112.
- BECKER, J. F. Adam Smith's theory of social science. *So. Econ. Jour.*, July 1961, pp. 13-21.
- CAFFÈ, F. Analisi economica e problemi di politica: note introduttive. *Giorn. d. Econ.*, Mar.-Apr. 1961, pp. 175-88.
- CLERIGA, VERA, J. Intento de construcción de una teoría económica dinámica avanzada. *Investigación Econ.*, 1961, 21 (2), pp. 389-410.
- . Naturaleza de la economía y alcance de las generalizaciones económicas. *Investigación Econ.*, 1961, 21 (1), pp. 59-88.
- GIERSCH, H. Wirtschaftliches Bewusstsein und wirtschaftliche Wirklichkeit. *Jahrb. f. Sozialwissensch.*, 1961, 12 (1), pp. 1-18.
- MAROS DELL'ORO, A. L'insegnamento delle *human relations* nell'economia americana. (With English summary.) *Riv. Internaz. di Sci. Econ. e Com.*, June 1961, pp. 534-46.
- PAPANDREOU, A. G. L'economia come scienza. (With English summary.) *L'industria*, 1961, 2, pp. 133-70.
- VARGA, S. Wirtschafts- und Marktforschung in Ost und West. *Schmollers Jahrb.*, 1961, 81 (3), pp. 1-41.

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

- AIELLO, A. Osservazioni sul "teorema del bilancio equilibrato." *Studi Econ.*, Jan.-Apr. 1961, pp. 91-105.
- ARAOZ, A. B. AND MALMGREN, H. B. Congestion and idle capacity in an economy. *Rev. Econ. Stud.*, June 1961, pp. 202-11.
- ARROW, K. J. Additive logarithmic demand functions and the Slutsky relations. *Rev. Econ. Stud.*, June 1961, pp. 176-81.
- BHATIA, R. J. Unemployment and the rate of change of money earnings in the United States, 1900-1958. *Economica*, Aug. 1961, pp. 286-96.
- BROOKS, R. C. JR. Price cutting and monopoly power. *Jour. Marketing*, July 1961, pp. 44-49.
- BROWN, F. H. S. AND EDWARDS, R. S. The replacement of obsolescent plant. *Economica*, Aug. 1961, pp. 297-302.
- BUCHANAN, J. M. Simple majority voting, game theory, and resource use. *Can. Jour. Econ. Pol. Sci.*, Aug. 1961, pp. 337-48.
- CHERUBINO, S. Sulle nozioni di ciclo di produzione, epoca, struttura, sviluppo. (With English summary.) *L'industria*, 1961, 2, pp. 171-93.
- COATS, A. W. The Political Economy Club: a neglected episode in American economic thought. *Am. Econ. Rev.*, Sept. 1961, pp. 624-37.
- DAS GUPTA, A. K. Adam Smith on value. *Indian Econ. Rev.*, Aug. 1960, pp. 105-15.
- EHRLICHER, W. Die Geld-, Finanz- und Lohnpolitik im volkswirtschaftlichen Systemzusammenhang. *Jahrb. f. Sozialwissensch.*, 1961, 12 (1), pp. 80-100.
- EISERMANN, G. Werbung und Wettbewerb. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 258-91.

- EISNER, R. AND STROTZ, R. H. Flight insurance and the theory of choice. *Jour. Pol. Econ.*, Aug. 1961, pp. 355-68.
- FESS, P. E. The theory of manufacturing costs. *Accounting Rev.*, July 1961, pp. 446-53.
- FJELDSTED, B. L. Schätzung einer amerikanischen Konsumfunktion mit reduzierter Form und kleinsten Quadraten. (With English summary.) *Ifo-Studien*, 1960, 6 (1/4), pp. 69-73.
- FLEMINO, J. M. AND BOISSONNEAULT, L. Money supply and imports. *Internat. Mon. Fund Staff Papers*, May 1961, pp. 227-40.
- FOLDES, L. Imperfect capital markets and the theory of investment. *Rev. Econ. Stud.*, June 1961, pp. 182-95.
- GENOVESE, F. C. The methodology of the price support program for wheat. *So. Econ. Jour.*, July 1961, pp. 22-29.
- GOMMERS, P. H. Government expenditure policy and micro multiplier effects. *Econ. Internaz.*, May 1961, pp. 216-30.
- GRAY, R. W. The search for a risk premium. *Jour. Pol. Econ.*, June 1961, pp. 250-60.
- GRAZIANI, A. Il rapporto capitale-prodotto nell'economia italiana: aspetti teorici e risultati statistici. *Giorn. d. Econ.*, Mar.-Apr. 1961, pp. 211-44.
- GREEN, H. A. J. Direct additivity and consumers' behaviour. *Oxford Econ. Papers*, June 1961, pp. 132-36.
- HANSEN, B. Om stock och flow i ekonomisk teori. (Stock and flow in economic theory.) *Ekon. Tids.*, June 1961, pp. 129-49.
- HOOVER, C. B. On the inequality of the rate of profit and the rate of interest. *So. Econ. Jour.*, July 1961, pp. 1-12.
- HUGHES, R. B., JR. Interregional income differences: self-perpetuation. *So. Econ. Jour.*, July 1961, pp. 41-45.
- JOHNS, B. L. AND HOGAN, W. P. Theory of the growth of the firm. *Econ. Record*, June 1961, pp. 171-82.
- KIATT, S. Die Qualität als Objekt der Wirtschaftswissenschaft. *Jahrb. f. Sozialwissensch.*, 1961, 12 (1), pp. 19-57.
- KRUTILLA, J. V. Welfare aspects of benefit-cost analysis. *Jour. Pol. Econ.*, June 1961, pp. 226-35.
- KUENNE, R. E. Keynes's identity, Ricardian virtue, and the partial dichotomy. *Can. Jour. Econ. Pol. Sci.*, Aug. 1961, pp. 323-36.
- MALINVAUD, E. The analogy between atemporal and intertemporal theories of resource allocation. *Rev. Econ. Stud.*, June 1961, pp. 143-60.
- MALMGREN, H. B. Information, expectations and the theory of the firm. *Quart. Jour. Econ.*, Aug. 1961, pp. 399-421.
- MARZANO, A. Nota su un fattore endogeno delle fluttuazioni: aspetti della funzione del consumo. (With English summary.) *Risparmio*, May 1961, pp. 905-18.
- McKINNELL, R. The formal analysis of joint supply. *So. Afr. Jour. Econ.*, June 1961, pp. 117-28.
- MINASIAN, J. R. Elasticities of substitution and constant-output demand curves for labor. *Jour. Pol. Econ.*, June 1961, pp. 261-70.
- MISHAN, E. J. Welfare criteria for external effects. *Am. Econ. Rev.*, Sept. 1961, pp. 594-613.
- MOORSTEEN, R. H. On measuring productive potential and relative efficiency. *Quart. Jour. Econ.*, Aug. 1961, pp. 451-67.
- NEGISHI, T. Monopolistic competition and general equilibrium. *Rev. Econ. Stud.*, June 1961, pp. 196-201.
- NISHIKAWA, S. Production function and scale coefficients. *Jour. Econ. Behavior (Tokyo)*, Apr. 1961, pp. 39-52.
- OORT, C. J. De grenzen der toerekening. *De Economist*, May 1961, pp. 321-37.

- OTT, A. E. Über die Gleichgewichtsbedingungen in einer wachsenden Wirtschaft. *Jahrb. f. Nationalök. und Stat.*, July 1961, pp. 229-40.
- PHILIPS, E. The golden rule of accumulation: a fable for growthmen. *Am. Econ. Rev.*, Sept. 1961, pp. 638-42.
- PRATS, S. J. Some mathematical notes on the quantity theory of money in an open economy. *Internat. Mon. Fund Staff Papers*, May 1961, pp. 212-26.
- QAYUM, A. Die Wahl einer optimalen Technik. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 193-200.
- ROBINSON, D. E. The economics of fashion demand. *Quart. Jour. Econ.*, Aug. 1961, pp. 376-98.
- SHUBIK, M. Objective functions and models of corporate optimization. *Quart. Jour. Econ.*, Aug. 1961, pp. 345-75.
- STIGLER, G. J. The economics of information. *Jour. Pol. Econ.*, June 1961, pp. 213-25.
- TALAMONA, M. Teoria dell'organizzazione, analisi microeconomica e teoria dell'oligopolio. (With English summary.) *L'industria*, 1961, 2, pp. 207-45.
- TUCKER, G. S. L. Ricardo and Marx. *Economica*, Aug. 1961, pp. 252-69.
- WILLGERODT, H. Marktpaltungen. *Kyklos*, 1961, 14 (2), pp. 173-98.
- ZACCAGNINI, E. Gradus ad Parnassum. IV. *Giorn. d. Econ.*, Mar.-Apr. 1961, pp. 147-74.

Economic History; Economic Development; National Economies

- ALIENES UROSA, J. Desarrollo económico y relación inter-sectores. Un análisis cuantitativo. *Moneda y Crédito*, Dec. 1960, pp. 3-22.
- ANDIC, S. AND PEACOCK, A. T. The international distribution of income, 1949 and 1957. *Jour. Royal Stat. Soc.*, 1961, 124 (2), pp. 206-18.
- BARAN, P. A. Reflexiones sobre la Revolución cubana. *El Trimestre Econ.*, July-Sept. 1961, pp. 383-402.
- BARKER, R. J. French entrepreneurship during the Restoration: the record of a single firm, the Anzin Mining Company. *Jour. Econ. Hist.*, June 1961, pp. 161-78.
- BERG, E. J. Backward-sloping labor supply functions in dual economies—the Africa case. *Quart. Jour. Econ.*, Aug. 1961, pp. 468-92.
- BETHEL, J. Some national income aggregates for Jamaica, at constant prices. *Soc. Econ. Stud.*, June 1961, pp. 128-55.
- BIEDA, K. Professor Hansen and the economics of the Soviet challenge. *Econ. Record*, June 1961, pp. 157-70.
- BOULDING, K. E. Qu'est-ce que le progrès économique? *Cahiers L'Inst. de Sci. Econ. Appliquée*, Feb. 1961, pp. 147-56.
- BROWN, A. J. Economic separatism versus a common market in developing countries. *Yorkshire Bull. Econ. Soc. Research*, May 1961, pp. 33-40.
- CAIRNCROSS, A. K. International trade and economic development. *Economica*, Aug. 1961, pp. 235-51.
- CARDOSO PEDRAO, F. La distribución de la renta y el desarrollo económico. (With English summary.) *Desarrollo Econ. (Argentina)*, Apr.-June 1961, pp. 35-114.
- CHANDAVARKAR, A. G. The nature and effects of gold hoarding in underdeveloped economies. *Oxford Econ. Papers*, June 1961, pp. 137-48.
- CORDEN, W. M. A brief review of some theories of economic growth. *Malayan Econ. Rev.*, Apr. 1961, pp. 1-12.
- DURLAM, J. B. AND THORKELOSON, H. J. Implications of the individualist theory of invention. *Antitrust Bull.*, Mar.-Apr. 1961, pp. 173-82.
- DOBB, M. Operational aspects of the Soviet economy. *Øst-Økon.*, Special No. 1961, pp. 19-34.
- . Some problems in the theory of growth and planning policy. *Kyklos*, 1961, 14 (2), pp. 135-52.

- DOWD, D. F. The economic expansion of Lombardy, 1300-1500: a study in political stimuli to economic change. *Jour. Econ. Hist.*, June 1961, pp. 143-60.
- FLUMIANI, A. Sviluppo economico e bilancia dei pagamenti nel terzo piano indiano. (With English summary.) *Pol. d. Scambi*, May-June 1961, pp. 19-32.
- FRISCH, R. Economic planning and the growth problem in developing countries. *Øst-Økon.*, Special No. 1961, pp. 51-74.
- FRISSELLA VELLA, G. Puntualizzazioni sulla politica meridionalista. *Com. d. Econ.*, Mar.-Apr. 1961, pp. 189-210.
- GITTINGER, J. P. United States policy toward agrarian reform in underdeveloped nations. *Land Econ.*, Aug. 1961, pp. 195-206.
- GIUSTINIANI, P. Come accelerare lo sviluppo economico. *Riv. di Pol. Econ.*, July 1961, pp. 1469-93.
- HALPERIN, M. Growth and crisis in the Latin American economy. *Sci. and Soc.*, Summer 1961, pp. 195-228.
- HANSON, A. H. Development corporations. *Yorkshire Bull. Econ. Soc. Research*, May 1961, pp. 41-50.
- HENDERSON, W. O. Die Struktur der preussischen Wirtschaft um 1786. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 292-319.
- HINNEKENS, L. De financiële betekenis van vervroegde fiscale afschrijving en investeringsaftrek in de Benelux-landen. *Tijdschrift v. Econ.*, 1961, 6 (2), pp. 166-204.
- HUTCHINGS, R. F. D. The origins of the Soviet industrial price system. *Soviet Stud.*, July 1961, pp. 1-22.
- HUTTON, G. The U.K. economy 1951-61: performance and prospect. *Lloyds Bank Rev.*, July 1961, pp. 1-25.
- ITAGAKI, Y. Some notes on the controversy concerning Boeke's "Dualistic Theory": implications for the theory of economic development in underdeveloped countries. *Hitotsubashi Jour. Econ.*, Oct. 1960, pp. 13-28.
- JASNY, N. A note on rationality and efficiency in the Soviet economy: II. *Soviet Stud.*, July 1961, pp. 35-68.
- KASER, M. Economic development in the Soviet Union and Eastern Europe, with special reference to statistics. *Øst-Økon.*, Special No. 1961, pp. 6-18.
- KHILNANI, K. R. F. L'India di fronte al Terzo Piano Quinquennale. (With English summary.) *Pol. d. Scambi*, May-June 1961, pp. 5-18.
- KOJIMA, K. Economic development and import dependence in Japan. *Hitotsubashi Jour. Econ.*, Oct. 1960, pp. 29-51.
- KÜNG, E. Kapitalbildung und Wirtschaftswachstum. *Schweiz. Zeitschr. f. Volkswirtschaft und Stat.*, June 1961, pp. 165-84.
- LAMBERT, P. La notion de progrès économique. *Cahiers L'Inst. de Sci. Econ. Appliquée*, Feb. 1961, pp. 169-80.
- LERDAU, E. Indicators for the national accounts in underdeveloped countries. *Kyklos*, 1961, 14 (2), pp. 199-212.
- LEWIS, W. A. Education and economic development. *Soc. Econ. Stud.*, June 1961, pp. 113-27.
- MACDOUGALL, G. D. A. India's balance of payments. *Bull. Oxford Univ. Inst. Stat.*, May 1961, pp. 153-78.
- MARRAMA, V. Développement, croissance, progrès. *Cahiers L'Inst. de Sci. Econ. Appliquée*, Feb. 1961, pp. 157-68.
- . Equilibrio e squilibrio nello sviluppo e nella programmazione. *Rassegna Econ.*, May-Aug. 1961, pp. 199-233.
- MASTER, M. A. External assistance for Five Year Plans. *Asian Econ. Rev.*, May 1961, pp. 211-35.
- MAYNARD, G. Inflation and growth: some lessons to be drawn from Latin-American experience. *Oxford Econ. Papers*, June 1961, pp. 184-202.

- MCDONALD, S. L. On the South's recent economic development. *So. Econ. Jour.*, July 1961, pp. 30-40.
- MONTIAS, J. M. Balanced growth and international specialization: a diagrammatic analysis. *Oxford Econ. Papers*, June 1961, pp. 203-20.
- MORRIS, M. D. AND STERN, B. The economic history of India: a bibliographic essay. *Jour. Econ. Hist.*, June 1961, pp. 179-207.
- NAKAYAMA, I. The Japanese economy and the role of the government. *Hitotsubashi Jour. Econ.*, Oct. 1960, pp. 1-12.
- NEWLYN, W. T. "Take-off" considered in an African setting. *Yorkshire Bull. Econ. Soc. Research*, May 1961, pp. 19-32.
- NICHOLLS, W. H. Uma apreciação da economia rural no Brasil. *Agricultura em São Paulo*, May 1961, pp. 1-36.
- NOVOLA, J. F. La Revolución cubana y sus efectos en el desarrollo económico. *El Trimestre Econ.*, July-Sept. 1961, pp. 403-25.
- OHKAWA, K. AND ROSOVSEY, H. On the industrial distribution of national product and labor force during economic growth. *Econ. Rev. (Japan)*, Apr. 1961, pp. 126-32.
- OSABA, W. AND AMARAL, N. Plan decenal de inversiones para el desarrollo del sector agrícola en el Uruguay. (With English summary.) *Desarrollo Econ. (Argentina)*, Apr.-June 1961, pp. 137-71.
- PALOMBA, G. La ricerca dei capitali per lo sviluppo economico. *Rassegna Econ.*, May-Aug. 1961, pp. 312-44.
- PENOUIL, M. Nota su alcuni aspetti teorici della politica di sviluppo territoriale. *Studi Econ.*, Jan.-Apr. 1961, pp. 60-90.
- PERROUX, F. L'idée de progrès devant la science économique de ce temps. *Cahiers L'Inst. de Sci. Econ. Appliquée*, Feb. 1961, pp. 135-46.
- PROCIUK, S. G. The territorial pattern of industrialization in the USSR: a case study in location of industry. *Soviet Stud.*, July 1961, pp. 69-95.
- RANIS, G. AND FEI, J. C. H. A theory of economic development. *Am. Econ. Rev.*, Sept. 1961, pp. 533-65.
- RIMMER, D. Schumpeter and the underdeveloped countries. *Quart. Jour. Econ.*, Aug. 1961, pp. 422-50.
- ROMANIS, A. Relative growth of exports of manufactures of United States and other industrial countries. *Internat. Mon. Fund Staff Papers*, May 1961, pp. 241-73.
- ROUQUET LA GARRIQUE, V. L'évolution économique et la politique financière contemporaine du Maroc. *I. Annales de Sci. Econ. Appliquées*, May 1961, pp. 191-225.
- SAVILLE, J. Some retarding factors in the British economy before 1914. *Yorkshire Bull. Econ. Soc. Research*, May 1961, pp. 51-60.
- SCHNORE, L. F. The statistical measurement of urbanization and economic development. *Land Econ.*, Aug. 1961, pp. 229-46.
- SHINOHARA, M. Growth and the long swing in the Japanese economy. *Hitotsubashi Jour. Econ.*, Oct. 1960, pp. 59-83.
- . Some causes and consequences of economic growth in Japan. *Malayan Econ. Rev.*, Apr. 1961, pp. 32-48.
- SORBECK, D. Das Arbeitskräftpotential als strukturelle Bedingung der wirtschaftlichen Entwicklung in Mitteldeutschland bis 1965. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 224-40.
- TANG, H. S. AND HSIEH, S. C. Land reform and agricultural development in Taiwan. *Malayan Econ. Rev.*, Apr. 1961, pp. 49-54.
- THIEN, T. T. Economic development in South Vietnam, 1954-60. *Malayan Econ. Rev.*, Apr. 1961, pp. 55-80.
- UGARTE, J. L. La planificación central como instrumento de desarrollo económico: condiciones de eficiencia y condiciones de crecimiento. *Rev. de Econ. Pol.*, Jan.-Apr. 1961, pp. 5-55.

- VEERARAGHAVACHAR, S. M. The problem of capital formation in India. *Asian Econ. Rev.*, May 1961, pp. 273-84.
- WAPENHANS, W. Die Entwicklung der öffentlichen Auslandsverschuldung Griechenlands seit der Begründung seiner nationalen Selbständigkeit. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 201-23.
- WILSON, J. S. G. Economic environment and development programmes. *Yorkshire Bull. Econ. Soc. Research*, May 1961, pp. 5-18.
- Economic growth and social policy in Latin America: the Seventh Conference of American States Members of the I.L.O. *Internat. Lab. Rev.*, July-Aug. 1961, pp. 50-74.
- Economic growth: the last hundred years. *Nat. Inst. Econ. Rev.*, July 1961, pp. 24-49.
- Soviet Agriculture. Eight articles by B. Braginskii and D. Dumnov, N. Lagutin and others. *Prob. Econ.*, May 1961, pp. 3-59.
- Yugoslavia's plan of economic development. *Yugoslav Surv.*, Jan.-Mar. 1961, pp. 467-509.

Statistical Methods; Econometrics; Social Accounting

- BILLETER, E. P. Operations Research und Statist. Schweiz. *Zeitschr. f. Volkswirtschaft und Stat.*, June 1961, pp. 185-93.
- FELS, E. Grundschule der kleinsten Quadrate. (With English summary.) *Ifo-Studien*, 1960, 6 (1/2), pp. 31-59.
- GRANGER, C. W. J. First report of the Princeton Economic Time Series Project. *L'industria*, 1961, 2, pp. 194-206.
- JORGENSEN, D. W. Multiple regression analysis of a Poisson process. *Jour. Am. Stat. Assoc.*, June 1961, pp. 235-45.
- KALLINEN, T. Säästäminen ja rahoitustilinpito. (With English summary—Savings and financial accounts.) *Kansantaloudellinen Aikakauskirja*, 1961, 2, pp. 114-24.
- MATTESSICH, R. Budgeting models and system simulation. *Accounting Rev.*, July 1961, pp. 384-97.
- MOL, IR. J., NEUDECKER, H. AND DE VEER, J. De Simplextechniek herbeschouwd. *De Economist*, July-Aug. 1961, pp. 516-32.
- MONTEIL, J. L'administration agrégat de la comptabilité économique. *Rev. Sci. Fin.*, July 1961, pp. 392-407.
- MUNDLAK, Y. Aggregation over time in distributed lag models. *Internat. Econ. Rev.*, May 1961, pp. 154-63.
- RUGGLES, R. Un sistema integrado de contabilidad nacional. (With English summary.) *Desarrollo Econ. (Argentina)*, Apr.-June 1961, pp. 25-33.
- TOCHER, K. D. The role of models in operational research (with discussion). *Jour. Royal Stat. Soc.*, 1961, 124 (2), pp. 121-42.
- ZELLNER, A. Econometric estimation with temporally dependent disturbance terms. *Internat. Econ. Rev.*, May 1961, pp. 164-78.

Economic Systems; Planning and Reform; Cooperation

- DREWNOWSKI, J. The economic theory of socialism: a suggestion for reconsideration. *Jour. Pol. Econ.*, Aug. 1961, pp. 341-54.
- JOHANSEN, L. Economic problems in a rich country: capitalism versus socialism. *Statspkon. Tids.*, Mar. 1961, pp. 34-52.
- KHACHATUROV, T. Price formation, investment effectiveness and profitability. *Prob. Econ.*, July 1961, pp. 18-25.
- NEMCHINOV, V. Value and price under socialism. *Prob. Econ.*, July 1961, pp. 3-17.
- PROBST, A. Value or price of production in the socialist economy. *Prob. Econ.*, July 1961, pp. 26-33.
- STRUMILIN, S. Differential ground rent under socialism. *Prob. Econ.*, July 1961, pp. 43-57.

- TINTNER, G. The use of stochastic linear programming in planning. *Indian Econ. Rev.*, Aug. 1960, pp. 159-67.
- VON MISES, L. L'élite nella società capitalistica. (With English summary.) *Riv. Internaz. di Sci. Econ. e Com.*, July 1961, pp. 654-61.
- WILLEKE, F.-U. Das Theorem der kumulativen Staatsintervention. *Jahrb. f. Sozialwissensch.*, 1961, 12 (1), pp. 58-79.

Business Fluctuations

- MILLSFAUGH, M. Problems and opportunities of relocation. *Law and Contemp. Problems*, Winter 1961, pp. 6-36.
- THEIL, H. AND JOCHEMS, D. B. Ein Überblick über einige Studien zur Analyse von Konjunkturtestdaten. (With English summary.) *Ifo-Studien*, 1960, 6 (1-2), pp. 7-28.

Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

- BANFI, R. L'evoluzione del sistema bancario sovietico, III. *Pol. d. Scambi*, Mar.-Apr. 1961, pp. 5-20.
- CHIANG, A. C. The short-run effects of instalment credit control. *Can. Jour. Econ. Pol. Sci.*, Aug. 1961, pp. 359-66.
- DAMMANN, A. Norsk selektiv penge- og kredittpolitikk i 1950- årene. *Økonomi*, Aug. 1961, pp. 3-133.
- DELIVANIS, D. J. La contribution du rapport Radcliffe à la théorie de la politique économique. *Rev. d'Econ. Pol.*, Mar.-Apr. 1961, pp. 145-64.
- DIETERLEN, P. Structure de la liquidité et phénoménologie monétaire. (With English summary.) *Riv. Internaz. di Sci. Econ. e Com.*, June 1961, pp. 501-15.
- HENDERSON, R. F. Principles of monetary policy. *Econ. Record*, June 1961, pp. 131-39.
- KAVESH, R. A. AND MACKEY, J. A financial framework for economic growth. *Jour. Finance*, May 1961, pp. 202-25.
- KESSLER, G. A. Vergelijking van twee monetaire modellen. *De Economist*, June 1961, pp. 396-409.
- MORGAN, E. V. Money, liquidity and interest rates. *Lloyds Bank Rev.*, July 1961, pp. 26-38.
- NADLER, P. S. Commercial banking in the sixties. *Jour. Finance*, May 1961, pp. 226-40.
- ORR, D. AND MELLON, W. G. Stochastic reserve losses and expansion of bank credit. *Am. Econ. Rev.*, Sept. 1961, pp. 614-23.
- REIERSON, R. L. Monetary policy and the money market. *Jour. Finance*, May 1961, pp. 247-54.
- SAYERS, R. S. Alternative views of central banking. *De Economist*, May 1961, pp. 305-20.
- STORER, R. W. Some factors influencing the monetary economy in the 1960's. *Quart. Rev. Econ. Bus.*, May 1961, pp. 25-35.
- TAKAHASHI, T. An interpretation of the concept of "money rate of interest" in Keynes' theory as the "Grenzbegriff" (concept of limitation) in connection with "own-rate of interest," and its logical character in monetary economy. *Hitotsubashi Jour. Com. and Manag.*, March 1961, pp. 1-10.
- VERRIJN STUART, G. M. Overheid en Centrale Bank. *De Economist*, July-Aug. 1961, pp. 481-99.
- WORRET, F. La politica bancaria come problema di forza. (With English summary.) *Riv. di Internaz. di Sci. Econ. e Com.*, June 1961, pp. 516-33.
- The balance sheet of agriculture, 1961. *Fed. Res. Bull.*, Aug. 1961, pp. 908-16.
- Interest rates in leading countries. *Fed. Res. Bull.*, Aug. 1961, pp. 891-98.

Public Finance; Fiscal Policy

- ALLORIO, E. Étude comparée du contentieux fiscal. *Rev. Sci. Fin.*, July 1961, pp. 408-22.
- BRISSAT, C. Justification de l'impôt sur l'énergie. *Rev. Sci. Fin.*, July 1961, pp. 451-63.
- CADOUX, CH. Du consentement de l'impôt. *Rev. Sci. Fin.*, July 1961, pp. 423-50.
- FORTE, F. Il problema della scelta del tipo d'imposizione sulle vendite: l'imposta a cascata. (With English summary.) *Riv. Internaz. di Sci. Econ. e Com.*, July 1961, pp. 601-38.
- GANGULI, B. N. The States' indebtedness to the Union Government: a study in principles of public debt management. *Indian Econ. Rev.*, Aug. 1960, pp. 142-58.
- HARRISS, C. L. Le problème des subventions aux Etats-Unis. *Rev. Sci. Fin.*, July 1961, pp. 375-91.
- NEVIN, E. British public debt policy—rapport anglais. *Pub. Fin./Fin. Publiques*, 1961, 16 (1), pp. 27-49.
- NORTON, P. T., JR. Effects of obsolescence on tax depreciation practice. *Engineering Econ.*, Summer 1961, pp. 34-45.
- PEN, J. Begrotingsprocedure en comptabiliteitswet. *De Economist*, June 1961, pp. 410-24.
- ROLPH, E. R. Debt management: some theoretical aspects—rapport américain. *Pub. Fin./Fin. Publiques*, 1961, 16 (1), pp. 105-20.
- WEIDENBAUM, M. L. The economic impact of the government spending process. *Bus. Rev.*, Univ. Houston, Spring 1961, pp. 4-47.

International Economics

- ALEMANN, R. T. Monetary stabilization in Latin America. *Jour. Finance*, May 1961, pp. 167-75.
- ALLEN, W. R. The International Monetary Fund and balance of payments adjustment. *Oxford Econ. Papers*, June 1961, pp. 149-65.
- ALTMAN, O. L. Professor Triffin on international liquidity and the role of the fund. Reply by R. Triffin (A brief for the defense). *Internat. Mon. Fund Staff Papers*, May 1961, pp. 151-94.
- AMBJÖRN, E. International payments and the I.M.F. *Skandinav. Bank. Quart. Rev.*, July 1961, pp. 65-73.
- BALASSA, B. Economies of scale in the European Common Market. *Econ. Internaz.*, May 1961, pp. 198-215.
- BINGSWANGER, H. C. Das intra-regionale Gleichgewicht. Zur Integration von Standorttheorie und Theorie des internationalen Handels. *Schweiz. Zeitschr. f. Volkswirtschaft und Stat.*, June 1961, pp. 129-64.
- BURNS, A. F. World competition and the American economy. *Pol. Sci. Quart.*, Sept. 1961, pp. 321-31.
- COLLINGS, F. d'A. Recent progress in Latin America toward eliminating exchange restrictions. *Internat. Mon. Fund Staff Papers*, May 1961, pp. 274-86.
- DE JONG, F. J. Regionale economische integratie. *Tijdschrift v. Econ.*, 1961, 6 (2), pp. 139-65.
- DENIS, H. Croissance industrielle et commerce extérieur. *Rev. d'Econ. Pol.*, Mar.-Apr. 1961, pp. 165-88.
- GARDNER, W. R. An exchange-market analysis of the U.S. balance of payments. *Internat. Mon. Fund Staff Papers*, May 1961, pp. 195-211.
- HARROD, R. Liquidity. (With Italian translation.) *Riv. di Pol. Econ.*, July 1961, pp. 1429-67.
- . Möglichkeiten zur Erhöhung der internationalen Liquidität. *Aussenwirtschaft*, June 1961, pp. 155-72.
- HIGONNET, R. Le protectionnisme fiscal dans le marché commun. *Rev. d'Econ. Pol.*, Mar.-Apr. 1961, pp. 189-204.

- HOLLERMAN, L. The logistic view versus the national income view of foreign trade dependence, with special reference to Japan. *Hitotsubashi Jour. Econ.*, Oct. 1960, pp. 52-58.
- JONES, R. W. Comparative advantage and the theory of tariffs: a multi-country, multi-commodity model. *Rev. Econ. Stud.*, June 1961, pp. 161-75.
- . Stability conditions in international trade: a general equilibrium analysis. *Internat. Econ. Rev.*, May 1961, pp. 199-209.
- KONRAD, A. Leistungsbilanzsalden und Einkommenskreislauf (With English summary.) *Ifo-Studien*, 1960, 6 (1/2), pp. 117-39.
- KUMAR, R. The concept of compensatory official financing: a restatement for balance-of-payments policy. *Econ. Internaz.*, May 1961, pp. 231-54.
- MENGSHOEL, R. Utviklingen innen seksmaktssamarbeidet. Spørsmål av særlig interesse for de ytre syv. *Økonomi*, May 1961, pp. 3-111.
- MONASTRA, F. La Banca Europea per gli Investimenti: struttura e funzionamento. (With English summary.) *Risparmio*, May 1961, pp. 851-904.
- MUNDELL, R. A. The international disequilibrium system. *Kyklos*, 1961, 14 (2), pp. 153-72.
- . A theory of optimum currency areas. *Am. Econ. Rev.*, Sept. 1961, pp. 657-64.
- OHLIN, B. Utrikeshandelsteorin—ett försök till "Ehrenrettung." (The theory of international trade—an attempt to "Ehrenrettung.") *Ekon. Tids.*, June 1961, pp. 73-92.
- POLAK, J. J. De onderscheiding tussen interne en externe inflatoire factoren. *De Economist*, June 1961, pp. 385-95.
- RÜSTOW, H.-J. Leistungsbilanz und Wirtschaftswachstum. (With English summary.) *Ifo-Studien*, 1960, 6 (1/2), pp. 75-114.
- SÖDERSTEN, B. Utrikeshandel och ekonomisk tillväxt. Den marginella aspekten. (International trade and economic growth. The marginal aspect.) *Ekon. Tids.*, June 1961, pp. 113-28.
- SOUTHARD, F. A., JR. United States experience. *Jour. Finance*, May 1961, pp. 176-85.
- SVENDSEN, K. E. Notes on the economic relations between the East European countries. *Statsøkon. Tids.*, Mar. 1961, pp. 18-33.
- TORRES MANZO, C. El GATT o el acuerdo general sobre aranceles aduaneros y comercio. *Investigacion Econ.*, 1961, 21 (1), pp. 25-40.
- VAN CISE, J. G. The application of the U.S. antitrust laws to the European community. *Antitrust Bull.*, Mar.-Apr. 1961, pp. 145-72.
- VENKATARAMANI, M. S. Oil and US foreign policy during the Suez crisis 1956-7. *Internat. Stud.*, Oct. 1960, pp. 105-52.
- WAHL, D. F. Capital and labour requirements for Canada's foreign trade. *Can. Jour. Econ. Pol. Sci.*, Aug. 1961, pp. 349-58.
- WITTMAYER, H. "Net production values" and industrial structure in international comparisons. *Prod. Meas. Rev.*, Feb. 1961, pp. 20-30.
- WOOD, R. C. Postwar experience in Europe. *Jour. Finance*, May 1961, pp. 157-66.
- The European economic community and Greece. *Com. Market*, May 1961, pp. 97-105.
- Exports and wages: the case of Japan: by the Economic Research Section, Economic Bureau, Ministry of Foreign Affairs, Japan. *Jour. Econ. Behavior (Tokyo)*, Apr. 1961, pp. 21-38.
- Twelfth Colombo Plan Consultative Committee meeting in Tokyo. *Asian Affairs*, Jan. 1961, pp. 1-62.

Business Finance; Investment and Security Markets; Insurance

- ACCIARO, A. Gli impieghi in titoli nelle Casse di Risparmio italiane. *Risparmio*, June 1961, pp. 1113-44.
- ANDREWS, V. L. The supply of loanable funds from non-insured corporate, state-, and city-administered employee pension trusts, *Jour. Finance*, May 1961, pp. 328-50.

- AMORSO, L. Si livellano i valori azionari al saggio di interesse di mercato. (With English summary.) *Econ. Internaz.*, May 1961, pp. 189-97.
- COX, E. B. Changes in the size distribution of dividend income. *Jour. Am. Stat. Assoc.*, June 1961, pp. 250-59.
- GALLOTTI, R. Los fondos o sociedades de inversión mobiliaria. *Moneda y Crédito*, Dec. 1960, pp. 23-64.
- HAMOIR, E. Technique de l'assurance-incendie. *Annales de Sci. Econ. Appliquées*, July 1961, pp. 317-35.
- JAMES, J. V. Management planning of capital allocations to business activities. *N.A.A. Bull.*, Sept. 1961, pp. 5-15.
- LIVINGSTON, W. G. and BROWN, R. C. Why measure return on capital? *N.A.A. Bull.*, Sept. 1961, pp. 17-26.
- LORUSSO, E. Evoluzione nelle istruttorie per finanziamenti a medio e a lungo termine. Influsso della dottrina dello Zappa. *Risparmio*, June 1961, pp. 1065-1112.
- McKINLEY, G. W. Life insurance company lending to small business. *Jour. Finance*, May 1961, pp. 291-303.
- ORTNER, R. An estimate of the time horizon and expected yield for a selected group of common shares, 1935-1955. *Internat. Econ. Rev.*, May 1961, pp. 179-98.
- PAUKERT, F. The value of Stock Exchange transactions in non-government securities, 1911-1959. *Economica*, Aug. 1961, pp. 303-9.
- QUIRK, J. P. The capital structure of firms and the risk of failure. *Internat. Econ. Rev.*, May 1961, pp. 210-28.

Business Organization; Managerial Economics; Marketing; Accounting

- COLE, H. J. D., HOLLAND, D. G., POSNER, M. V. Factory productivity and efficiency. *Bull. Oxford Univ. Inst. Stat.*, May 1961, pp. 105-34.
- DISNEY, R. L. A review of inventory control theory. *Engineering Econ.*, Summer 1961, pp. 1-33.
- EASTERFIELD, T. E. Aims and methods in productivity measurement at plant level. *Prod. Meas. Rev.*, Feb. 1961, pp. 5-19.
- HENDRIKSON, K. Inter-firm comparisons at equal levels of utilisation—new ways of increasing efficiency. *Prod. Meas. Rev.*, Feb. 1961, pp. 31-59.
- HONKO, J. Investoinnin tuottoprosentti liiikkejohdon tehokkuuden mittana. (With English summary.) *Liiketaloudellinen Aikakauskirja*, 1961, 1, pp. 6-22.
- PHELPS, D. M. Soviet marketing—stronger than we think. *Harvard Bus. Rev.*, July-Aug. 1961, pp. 69-80.
- POLLARD, S. and HUGHES, J. D. Costs in retail distribution in Great Britain, 1950-7. *Oxford Econ. Papers*, June 1961, pp. 166-83.
- QUINN, J. B. Long-range planning of industrial research. *Harvard Bus. Rev.*, July-Aug. 1961, pp. 88-102.
- SOLOMONS, D. Economic and accounting concepts of income. *Accounting Rev.*, July 1961, pp. 374-83.
- THONSTAD, T. and JOCHEMS, D. B. The influence of entrepreneurial expectations and appraisals on production planning: an econometric study of the German leather and shoe industries. *Internat. Econ. Rev.*, May 1961, pp. 135-53.

Industrial Organization; Government and Business; Industry Studies

- BELLON, P. Marine marchande et pays en voie de développement économique. *Rev. Econ.*, July 1961, pp. 596-644.
- BOAS, C. W. Locational patterns of American automobile assembly plants, 1895-1958. *Econ. Geog.*, July 1961, pp. 218-30.

- FOLDES, L. Domestic air transport policy—II. *Economica*, Aug. 1961, pp. 270-85.
- FUENTES DELGADO, R. Competencia y coordinación entre los sistemas de transporte. *Investigación Econ.*, 1961, 21 (1), pp. 3-24.
- GRASSINI, F. A. Appunti sulle imprese pubbliche. *Studi Econ.*, Jan.-Apr. 1961, pp. 24-59.
- HEUSS, E. Bemerkungen zum Vorentwurf eines Bundesgesetzes über das Filmwesen. *Wirtschaft und Recht*, 1961, 13 (2), pp. 108-19.
- HOBBS, A. B. Relevant market problems in FTC merger cases on review in the courts. *Antitrust Bull.*, Mar.-Apr. 1961, pp. 125-30.
- KEYES, L. S. The Bethlehem-Youngstown Case and the market-share criterion. *Am. Econ. Rev.*, Sept. 1961, pp. 643-56.
- MOHRING, H. Land values and the measurement of highway benefits. *Jour. Pol. Econ.*, June 1961, pp. 236-49.
- SAAVEDRA MOTA, M. Integración del Ferrocarril Mexicano al sistema de los Ferrocarriles Nacionales de México. Conclusión. *Investigación Econ.*, 21 (2), pp. 361-88.
- STEELE, C. A. Long range physical and financial planning for highways: II. *Bus. and Gov. Rev.*, Univ. Missouri, July-Aug. 1961, pp. 11-33.
- TILMANT, M. Les compagnies aériennes du marché commun au seuil d'Air-Union. *Annales de Sci. Econ. Appliquées*, July 1961, pp. 279-314.
- WILDAVSKY, A. TVA and power politics. *Am. Pol. Sci. Rev.*, Sept. 1961, pp. 576-90.

Land Economics; Agricultural Economics; Economic Geography; Housing

- BANDERA, V. N. Ein einfaches Regressionsmodell für die Wertschöpfung der Landwirtschaft. (With English summary.) *Ifo-Studien*, 1960, 6 (1/2), pp. 61-67.
- BERENBAU, M. El desarrollo de la agricultura Argentina. (With English summary.) *Desarrollo Econ. (Argentina)*, Apr.-June 1961, pp. 115-36.
- BOEV, V. Differential rent and the problem of prices of collective farm products. *Prob. Econ.*, July 1961, pp. 34-42.
- BREWER, M. F. Local government assessment: its impact on land and water use. *Land Econ.*, Aug. 1961, pp. 207-18.
- CLODIUS, R. L. AND MUELLER, W. F. Market structure analysis as an orientation for research in agricultural economics. *Jour. Farm Econ.*, Aug. 1961, pp. 515-53.
- CORNISH, R. J. AND HEMPEL, J. A. The agricultural policy of the European economic community. *Quart. Rev. Agric. Econ.*, Apr. 1961, pp. 64-78.
- DAVIS, O. A. AND WHINSTON, A. B. Economics of urban renewal. *Law and Contemp. Problems*, Winter 1961, pp. 105-17.
- DELL'AMORE, G. Il credito agrario a una svolta. *Risparmio*, June 1961, pp. 1045-64.
- GARINO CANINA, A. Considerazioni sul problema dell'agricoltura italiana nella Comunità Economica Europea. (With English summary.) *Risparmio*, Apr. 1961, pp. 631-47.
- HEADY, E. O. Public purpose in agricultural research and education. *Jour. Farm Econ.*, Aug. 1961, pp. 566-81.
- HINOJOSA ORTIZ, M. Reflexiones sobre una política agraria. *Investigación Econ.*, 1961, 21 (2), pp. 211-34.
- JOHNSTON, B. F. AND MELLOR, J. W. The role of agriculture in economic development. *Am. Econ. Rev.*, Sept. 1961, pp. 566-93.
- MANTEL, K. Der Standort der Forstwirtschaft in der Thünenschen Theorie. *Schmollers Jahrb.*, 1961, 31 (3), pp. 43-60.
- NICHOLLS, W. H. Industrialization, factor markets, and agricultural development. *Jour. Pol. Econ.*, Aug. 1961, pp. 319-40.
- PANSE, V. G. AND MENON, V. S. Index numbers of agricultural production in India. *Indian Jour. Agric. Econ.*, Apr.-June 1961, pp. 18-36.

- PASTO, J. K. The role of farm management in underdeveloped countries. *Jour. Farm Econ.*, Aug. 1961, pp. 606-15.
- SCHLOTTER, H.-G. Produktionsregulative Agrarsubventionen. *Jahrb. f. Nationalök. und Stat.*, July 1961, pp. 241-68.
- TALBOT, R. B. Farm legislation in the 86th Congress. *Jour. Farm Econ.*, Aug. 1961, pp. 582-605.
- WALRATH, A. J. Title to land. *Jour. Farm Econ.*, Aug. 1961, pp. 616-25.

Labor Economics

- ARONSON, R. L. Labour commitment among Jamaican bauxite workers. *Soc. Econ. Stud.*, June 1961, pp. 156-82.
- EBERHART, E. K. Work stoppages in the United States and New Zealand. *Econ. Record*, June 1961, pp. 140-56.
- GROOM, P. P. Retraining the unemployed, I—European government programs. *Mo. Lab. Rev.*, Aug. 1961, pp. 823-28.
- HILL, T. P. AND KNOWLES, K. G. J. C. Wages in coal mining. *Bull. Oxford Univ. Inst. Stat.*, May 1961, pp. 135-52.
- JOHNSON, D. B. Prevailing wage legislation in the States. *Mo. Lab. Rev.*, Aug. 1961, pp. 839-45.
- LEITER, R. D. Organized labor and the tariff. *So. Econ. Jour.*, July 1961, pp. 55-65.
- LESTER, R. A. Implications of labor force developments for unemployment benefits. *Econ. and Bus.*, May 1961, pp. 47-56.
- MAHONEY, T. A. Factors determining the labor-force participation of married women. *Indus. Lab. Rel. Rev.*, July 1961, pp. 563-77.
- MANN, J. K. Private and governmental plans for the adjustment of interunion disputes: work assignment conflict to 1949. *Stanford Law Rev.*, Dec. 1960, pp. 5-59.
- MEREDITH, J. L. Long-term unemployment in the United States. *Mo. Lab. Rev.*, June 1961, pp. 601-10.
- MILLER, W. L. Slavery and the population of the South. *So. Econ. Jour.*, July 1961, pp. 46-54.
- MITTENTHAL, R. Past practice and the administration of collective bargaining agreements. *Mich. Law Rev.*, May 1961, pp. 1017-42.
- PRESSAT, R. Vues sur la planification de la main-d'oeuvre en Union Soviétique. *Population*, Apr.-June 1961, pp. 235-48.
- RAY, N. C. Wage policy in a planned economy. *Asian Econ. Rev.*, May 1961, pp. 263-72.
- RIVA-SANSEVERINO, L. The influence of international labour conventions on Italian labour legislation. *Internat. Lab. Rev.*, June 1961, pp. 576-601.
- SAUVY, A. Les perspectives d'accroissement du nombre des emplois en France d'ici 1975. *Population*, Apr.-June 1961, pp. 197-220.
- SCHULTZ, T. W. A policy to redistribute losses from economic progress. *Jour. Farm Econ.*, Aug. 1961, pp. 554-65.
- TURNER, H. A. AND BESCOBY, J. Strikes, redundancy and the demand cycle in the motor car industry. *Bull. Oxford Univ. Inst. Stat.*, May 1961, pp. 179-86.
- VATTER, H. G. On the folklore of the backward-sloping supply curve. *Indus. Lab. Rel. Rev.*, July 1961, pp. 578-86.
- WEISZ, M. The United States Labour-Management Reporting and Disclosure Act, 1959: its background and early operation. *Internat. Lab. Rev.*, July-Aug. 1961, pp. 75-100.

Population; Welfare Programs; Consumer Economics

- BALDI, G. M. L'uomo protetto nella società. *Riv. di Pol. Econ.*, July 1961, pp. 1494-1507.
- DREYER, H. M. Immigration of foreign workers into the Federal Republic of Germany. *Internat. Lab. Rev.*, July-Aug. 1961, pp. 1-25.

- ESENWEIN-ROTHE, I. Neuere Literatur zur theoretischen und politischen Bevölkerungswissenschaft. *Jahrb. f. Sozialwissensch.*, 1961, 12 (1), pp. 101-17.
- GLEASON, A. H. The social adequacy method of international level of living comparisons as applied to Japan and the United States. *Jour. Econ. Behavior* (Tokyo), Apr. 1961, pp. 3-20.
- JØRGENSEN, E. Aspekter af befolkningsproblemet. *Økon. og Pol.*, 1961, 35 (1), pp. 28-46.
- MINAMI, R. An analysis of Malthus' population theory: with Comments by M. Tachi and T. Yoshida. *Jour. Econ. Behavior* (Tokyo), Apr. 1961, pp. 53-66.
- RIBAS, J. J. Observations on the financing of social security in the Common Market countries. *Internat. Lab. Rev.*, July-Aug. 1961, pp. 26-49.
- TELLERIA, L. O La experiencia migratoria venezolana. *Jour. Órgano de difusión Sindicalista* (Madrid), Mar.-Apr. 1961, pp. 230-97.
- VON UNGERN-STERNBERG, R. Eine Diagnose des derzeitigen Zustandes der Weltbevölkerung. *Zeitschr. f. die ges. Staatswiss.*, June 1961, pp. 241-57.
- De la prévision démographique et des problèmes qu'elle soulève. *Études de Comptabilité Nat.*, Apr. 1960, pp. 41-56.
- L'exode rural. *Études de Comptabilité Nat.*, Apr. 1960, pp. 57-130.

Related Disciplines

- VICKREY, W. Risk, utility, and social policy. *Soc. Research*, Summer 1961, pp. 205-17.
- WILSON, J. Q. The economy of patronage. *Jour. Pol. Econ.*, Aug. 1961, pp. 369-80.
- YOTOPOULOS, P. A. Institutional affiliation of the contributors to three professional journals. *Am. Econ. Rev.*, Sept. 1961, pp. 665-701.

NOTES

Members who wish to make suggestions for officers of the American Economic Association for 1962-63 are asked to place names with James Washington Bell, secretary of the Association, for transmission to the Nominating Committee, which will be appointed by the incoming president, Edward S. Mason.

NATIONAL TASK FORCE ON ECONOMIC EDUCATION

In July 1960, by the joint action of the Committee for Economic Development and the American Economic Association, the National Task Force on Economic Education was established. The primary mission of the Task Force was to describe the minimum understanding of economics essential for good citizenship and attainable by high school students, with the object of providing helpful guidance for high school teachers, administrators, and school boards.

Once created, the Task Force became completely independent of the two organizations responsible for its creation. Its findings are subject to review by no agency or organization; nor is either of the sponsoring organizations responsible for the findings.

The members of the Task Force are: G. L. Bach (chairman), A. A. Bellack, L. V. Chandler, M. L. Frankel, R. A. Gordon, B. W. Lewis, P. A. Samuelson, and F. A. Bond. Bellack is professor of education, Teachers College, Columbia University; and Frankel is director, Joint Council on Economic Education; the others are economists.

The report of the Task Force, entitled *Economic Education in the Schools*, has now been completed and copies of the report can be obtained from the Committee for Economic Development, 711 Fifth Avenue, New York 22, N.Y., at \$1 each (with discounts on large purchases). The CED has published a short summary of the report, available for 35 cents a copy.

REPORT OF THE CENSUS ADVISORY COMMITTEE OF THE AMERICAN ECONOMIC ASSOCIATION

The Committee was established as a result of resolutions adopted at 1959 meetings of the Executive Committee of the American Economic Association, in which it was stated that "... it would be highly desirable for economists as a group to be able to advise the Bureau of the Census through a formal AEA Advisory Committee. . . ." Its first meeting with the director and executive staff of the Census Bureau was held in April 1960; subsequent meetings were in November 1960 and May 1961. The initial membership of the Committee, in addition to the chairman, Solomon Fabricant, consisted of Harold Barger, Millard Hastay, H. Gregg Lewis, John Lintner, and Anthony Tang. Morris A. Adelman, Donald J. Daly, Victor Fuchs, and Frank E. Morris attended the second meeting as co-opted members. The regular membership of the Committee has been enlarged by the appointment of Morris A. Adelman, Edward F. Denison, Carl Kaysen, and Arthur Okun.

The principal topics discussed have been: The Census Bureau's long-range economic statistics program; the Census Bureau's "Report on Business Cycle Development"; statistical needs in relation to area redevelopment and economic growth programs; and price-cost indexes. At future meetings topics for discussion will include: the Census of Transportation; the content of the Census of Manufactures and Mineral Industries; a possible Census of Wealth; value-added statistics in the Census of Business; foreign-trade statistics programs; the 1962 Census of Government; and principles for the determination of statistical priorities.

The Committee wishes to bring to the attention of members of the Association the fact that the Census Bureau for many years has cooperated with economists and others by providing, at cost, tabulations of data supplementary to those regularly published. Requests for such tabulations may be made directly to the Bureau of the Census but Com-

mittee members and the chairman may be called upon for information about Census data and policies. Members of the Association who are interested in the work of the Advisory Committee are invited to consult with members of the Committee.

INTERNATIONAL ECONOMIC HISTORY CONFERENCE

The second International Economic History Conference will be held at Aix-en-Provence, France, August 29 to September 4, 1962. The executive secretaries of the conference are P. Mathias, Queens' College, Cambridge University and Madame D. Cassella, École des Hautes Études, Paris. One of the four plenary sessions will be given up to discussion of and planning for the proposed International Economic History Association. Subjects of the other sessions will be: (1) Agrarian Problems of Under-developed Societies in the Light of European Agrarian History, (2) Rents, Profits, Investment and the Rate of Interest, and (3) Industrial Development and the Working Classes.

Sections meetings will be held on the following themes: (1) Trade and Politics in the Ancient World, (2) Medieval Economy: Problems of Capital Formation, Agrarian Development of Medieval Italy, Agriculture in the Slavonic Regions, (3) Historical Problems of Population and Economic Growth, (4) History of Prices and Economic Fluctuations, (5) Agrarian History of the Modern Era: Government Policy, Credit, Cooperatives and Collective Forms of Production, (6) Rural Industries and Artisans, (7) Typology of Industrialization, (8) Capital Formation in the Early Stages of Industrialization, and (9) Historical Problems of Colonial Development.

The closing date for registration is May 31, 1962. For details with respect to registration, accommodations, and publications, communications should be addressed to *International Conference*, c/o Professor G. Duby, Faculté des Lettres, l'Université, Aix-en-Provence, (B. du Rh.), France.

NATIONAL HONOR SOCIETY IN ECONOMICS

Omicron Chi Epsilon, national honor society in economics, was founded in 1956 by students at the City College of New York in order to stimulate interest in economics and provide a means of conferring honors on the more promising students working in this field. The society provides a forum for academic intercourse between graduate and undergraduate students of economics across the country. A national convention of member chapters is held annually. There are active chapters of Omicron Chi Epsilon, as of June 1961, at 24 institutions of higher learning within the United States.

A journal, *The American Economist*, is provided semi-annually. Its purpose is (1) to provide an outlet for meritorious essays by graduate and undergraduate students, and (2) to provide a means of acquainting would-be economists, particularly undergraduates contemplating a career in economics, with some idea of modern developments in pure and applied economics.

Further information concerning the society may be obtained from John D. Guilfoil, 1961-62 national president, at 36-03-21 Avenue, Astoria 5, N.Y. Correspondence concerning *The American Economist* should be directed to the managing editor, Alan Canter, 218-33 100 Avenue, Queens Village, N.Y.

FELLOWSHIPS FOR REGIONAL FACULTY RESEARCH SEMINARS IN ECONOMICS

The Ford Foundation announces six Regional Research Seminars in Economics to be held in the summer of 1962 for an eight-week period. Participation is open on a competitive basis to faculty members teaching economics or business subjects at four-year institutions of higher learning that do not offer a doctorate in economics. It is the purpose of the program to enhance the effectiveness of teaching and to encourage research studies of significance.

The regions, directors, and subject areas will be the following: I, Northeast, Joseph S. Berliner, Syracuse University, "The Soviet Economy"; II, Southeast, D. Rutledge Vining, University of Virginia, "Political Economy and Public Policy"; III, Middle West, Richard

B. Heflebower, Northwestern University, "Industrial Organization and Prices"; IV, Northwest, Oswald H. Brownlee, University of Minnesota, "Public Finance and Fiscal Policy"; V, Southwest, Edgar O. Edwards, Rice University, "Economic Analysis and Accounting"; VI, West, Wytze Gorter, University of California at Los Angeles, "International Economics and National Policy."

Fellowships provide a stipend of \$800, an additional contribution of \$200 toward living expenses, and travel expenses. Preference will be given to applicants under 50 years of age who have had at least three years of teaching experience since attending graduate school. Applications may be secured from the seminar director in the applicant's region, and must be submitted before January 15, 1962. Brochures defining regions and giving other details will be sent to AEA members in the United States before January 1, 1962. Awards will be announced not later than March 1st.

Announcements

The Social Systems Research Institute of the University of Wisconsin, Guy H. Orcutt, director, announces a reprint series that will report on the work of the Institute and of the members of its staff. The Social Systems Research Institute seeks to achieve increased predictive ability in the social sciences by means of the construction and utilization of realistic, detailed working models of the U.S. economy and other socioeconomic systems. Those interested in receiving regular announcements of available reprints should write to Professor Gerald Somers, Social Systems Research Institute, Sterling Hall, University of Wisconsin, Madison 6, Wisconsin.

The Cooperative Research and Demonstration Grant Program of the Social Security Administration provides support for research of significance to social security programs and social welfare. The purpose is to add to existing knowledge or devise and evaluate new methods of applying knowledge with regard to such problems as "the prevention and reduction of dependency . . . coordination of planning between private and public welfare agencies" or improvement in "the administration and effectiveness of programs carried on or assisted under the Social Security Act and programs related thereto. Grants may be made to public agencies and other non-profit organizations. Grants are not available to individuals. The program is administered by the Research Grants Branch, Division of Program Research, Office of the Commissioner, Social Security Administration.

Deaths

William F. Bristol, State University of Iowa, May 30, 1961.

Frank T. Carlton, Case Institute of Technology.

Leslie T. Fournier, Ridgewood, New Jersey, July 5, 1961.

Julius Hirsch, New York City, October 14, 1960.

Don D. Lescossier, emeritus professor, University of Wisconsin, August 27, 1961.

Retirements

Alvin K. Aster, New York University, August 1961.

William A. Berridge, Metropolitan Life Insurance Company, August 1961.

William F. Connelly, New York University, August 1961.

George D. Halsey, University of South Carolina, June 1961.

Edmund D. McGarry, professor emeritus, University of Buffalo, July 1961.

Margaret G. Reid, University of Chicago, September 1961.

Olin G. Saxon, Yale University, June 1961.

W. Bayard Taylor, Claremont Men's College.

James B. Williams, University of South Carolina, June 1961.

Visiting Foreign Scholars

Jacques Dreze, University of Louvain, Belgium: visiting associate professor, Northwestern University, winter and spring quarters.

Joseph Grunwald, Instituto de Economía, Universidad de Chile: visiting professor, Yale University, 1961-62.

Kelvin J. Lancaster, London School of Economics: visiting professor of economics, Brown University, 1961-62.

Humberto Schenone, Catholic University, Lima, Peru: Fulbright visiting professor, College of Business Administration, University of Florida, fall semester.

Shin-ichi Takezawa, St. Paul's University, Tokyo, Japan: visiting scholar, School of Business Administration, University of North Carolina, fall semester.

Promotions

Henry H. Albers: professor of management, State University of Iowa.

Raymond A. Bailey: associate professor, department of agricultural economics, Ohio State University.

Wallace Barr: assistant professor, department of agricultural economics, Ohio State University.

Charles E. Barrett: assistant professor of economics, University of Maryland.

Alan B. Batchelder: assistant professor of economics, Ohio State University.

Eimer F. Baumer: professor, department of agricultural economics, Ohio State University.

Robert E. Berry: professor of economics, Miami University.

Gordon W. Bertram: associate professor of economics, Los Angeles State College.

Frederic Brett: associate professor, University of Alabama.

Arthur D. Butler: professor of economics, The University of Buffalo.

Helen Cameron: assistant professor of economics, Ohio State University.

Joseph R. Cammarosano: associate professor, Fordham University; currently on leave with Bureau of the Budget.

Philip M. Carroll: associate professor, Colorado State University.

Marion Carson: assistant professor of accounting, University of Florida.

Avery B. Cohan: professor, School of Business Administration, University of North Carolina.

Paul G. Craig: professor of economics, Ohio State University.

Darwin W. Daicoff: assistant professor of economics, University of Kansas.

Harry C. Eastman: associate professor, department of political economy, University of Toronto.

John E. Elliott: associate professor, University of Southern California.

Ragaei El Mallakh: associate professor, University of Colorado.

George W. England: professor of industrial relations, University of Minnesota.

Grant N. Farr: professor, University of Colorado.

Daniel H. Garnick: assistant professor of economics, School of Business Administration, University of Buffalo.

Kermit Gordon: David A. Wells professor of political economy, Williams College; on leave, member of Council of Economic Advisers.

William T. Hogan: associate professor, Fordham University.

Allen M. Hoost: associate professor of accounting, New York University.

Virgil L. Hurlburt: professor, department of economics and sociology, Iowa State University.

- James C. Ingram: professor, School of Business Administration, University of North Carolina.
- Ronald W. Jones: associate professor of economics, University of Rochester.
- William E. Jones: assistant professor of accounting, School of Business Administration, University of South Carolina.
- Norman G. Keig: assistant professor of economics, Ohio State University.
- Robert L. King: associate professor of marketing, School of Business Administration, University of South Carolina.
- Israel M. Kirzner: associate professor of economics, New York University.
- Alfred Kuhn: professor of economics, University of Cincinnati.
- Harold Q. Langenderfer: professor of accounting, School of Business Administration, University of North Carolina.
- David T. Lapkin: professor, School of Business Administration, University of North Carolina.
- Mark W. Leiserson: associate professor of economics, Yale University.
- Willard Lewis: assistant professor of management, New York University.
- Charles E. Lindblom: professor of economics, Yale University.
- Arthur D. Lynn: professor of economics, Ohio State University.
- Thomas A. Mahoney: professor of industrial relations and economics, University of Minnesota.
- Morris Mayer: associate professor, department of marketing, University of Alabama.
- Paul Medow: assistant professor of economics, Rutgers—The State University.
- Chester A. Morgan: professor of labor economics, State University of Iowa.
- Benjamin Newman: professor of accounting, New York University.
- Clinton V. Oster: professor of economics, Ohio State University.
- William N. Parker: professor, School of Business Administration, University of North Carolina.
- Ronald H. Pollock: assistant professor, department of agricultural economics, Ohio State University.
- Olin S. Pugh: professor of economics, School of Business Administration, University of South Carolina.
- Kenneth Quindry: research associate, Bureau of Business Research, University of Kentucky.
- Albert Rees: professor of economics, University of Chicago.
- Robert M. Reeser: assistant professor, department of agricultural economics, Ohio State University.
- Anthony L. Sancetta: professor of economics, The College of William and Mary.
- John W. Sharp: professor, department of agricultural economics, Ohio State University.
- John C. Sherry: professor of social sciences, Pace College.
- Stefan Stykolt: associate professor, department of political economy, University of Toronto.
- Overton H. Taylor: professor of economics, Harvard University.
- Carey C. Thompson: professor of economics, University of Texas.
- Procter Thomson: professor of economics, Claremont Men's College.
- Gene B. Tipton: associate professor of economics, Los Angeles State College.
- Joseph Tryon: assistant professor of economics, Georgetown University.
- S. C. Tsiang: professor of economics, University of Rochester.
- Walter H. Uphoff: associate professor of labor education, University of Minnesota.
- William A. Wayt: associate professor, department of agricultural economics, Ohio State University.

H. M. Weingartner: assistant professor of industrial economics, Graduate School of Business, University of Chicago.

Stanislaw H. Wellisz: associate professor of business economics, Graduate School of Business, University of Chicago.

Charles Wrege: assistant professor of management, New York University.

Administrative Appointments

Ruben V. Austin, Michigan State University: chairman, department of economics and business administration, University of Delaware.

Vincent Barnett: permanent chairman, Center for Development Economics, Williams College.

Lloyd L. Bowie: head, department of business and economics, Little Rock University.

John E. Buehler: assistant to dean and director, Graduate Management Program, School of Business Administration, University of Buffalo.

Thomas C. Campbell: acting dean, College of Commerce, West Virginia University.

John Chalmers, Larpur College: dean of the College of Arts and Sciences and professor of economics, University of Wyoming.

Carl F. Christ: professor of political economy and chairman, department of political economy, Johns Hopkins University.

John M. Ferguson: chairman, department of business, William Woods College, Fulton, Missouri.

A. C. Flora, Jr.: director, Bureau of Business and Economic Research, School of Business Administration, University of South Carolina.

William B. Gates, Jr.: William Brough professor of economics and chairman, department of economics, Williams College.

James B. Hendry: assistant dean of overseas programs, Michigan State University.

Arleigh P. Hess: vice-provost, University of Pennsylvania.

Hans E. Jensen: promoted to professor of economics and dean, College of Business, Economics and Public Administration, University of Alaska.

Mark L. Kahn: chairman, department of economics, Wayne State University.

V. R. Kiely: head, department of business administration, University of Alaska.

Harvey J. Levin: chairman, department of economics, Hofstra College.

John Perry Miller: dean, Graduate School, Yale University.

Edward A. Nelson: head, department of finance, Los Angeles State College.

Richard L. Porter: chairman, department of economics, Marquette University.

W. F. Putnam: assistant to dean, School of Business Administration, University of South Carolina.

Albert Rees: chairman, department of economics, University of Chicago.

Harold M. Somers: chairman, department of economics, University of California, Los Angeles.

H. Edwin Young: dean, College of Letters and Science, University of Wisconsin.

Appointments

F. Gerard Adams: assistant professor of economics, University of Pennsylvania.

R. L. Armstrong, Jr.: instructor in management, School of Business Administration, University of South Carolina.

Harvey Averch: economics department, The RAND Corporation.

Werner Baer: assistant professor of economics, Yale University.

Maurice E. Baker: assistant professor, department of agricultural economics, Ohio State University.

- G. Paul Balabanis: instructor in economics, University of California, Berkeley.
- Benjamin Barg: assistant professor of economics, University of Pennsylvania.
- Robert L. Basmann: associate professor of economics, University of Chicago.
- Donald V. T. Bear: assistant professor of economics, University of Chicago.
- Wilbur E. Benson, California Western University: associate professor of finance, College of Business Administration, University of Georgia.
- Normand R. V. Bernard: instructor in economics, Boston College.
- Brian D. Bixley: lecturer, department of political economy, University of Toronto.
- J. O. Blackburn, Duke University: American University, Beirut, Lebanon.
- Carmen G. Blough, retired, Columbia University: visiting professor, department of accounting, University of Florida.
- Harry G. Brainard, Michigan State University: visiting professor of economics, University of Arizona.
- William C. Brainard: instructor in economics, Yale University.
- Richard P. Brief: instructor in economics, New York University.
- David G. Brown: assistant professor of economics, School of Business Administration, University of North Carolina.
- Henry Bruton: associate professor of economics, Williams College, beginning July 1st, 1962; will be at the Economic Development Institute, Karachi, during 1961-62.
- Louis Buckley: adjunct professor of economics, Fordham University.
- Thomas F. Carroll: agricultural economist, Inter-American Development Bank, Washington, D.C.
- Antonio G. Casas: member, economics division, Inter-American Development Bank, Washington, D.C.
- Mariam K. Chamberlain: research associate in economics, Yale University.
- Peter M. Cody, International Cooperation Administration, Washington, D.C.: chief, program division, United States Operations Missions of Cambodia.
- John Cosgrove, Georgetown University: assistant director, Office of Civil Defense Mobilization.
- J. Walter Couper: adjunct professor, department of economics, Fordham University.
- George Coutsoumaris, Central University, Caracas: member of staff, Center of Economic Research, Athens, Greece.
- John H. G. Crispo: assistant professor of labor relations, School of Business, University of Toronto.
- Paul Davidson: assistant professor, department of economics, University of Pennsylvania.
- John N. Davis: assistant professor of management, New York University.
- Herbert S. Denenberg: assistant professor of insurance, State University of Iowa.
- Carlos F. Diaz-Alejandro: instructor in economics, Yale University.
- Paul D. Dickens, Treasury Department, Washington, D.C.: visiting professor of economics, University of Oklahoma.
- Arthur R. Dorsch, University of Florida: assistant professor, School of Business Administration, American International College.
- Myles M. Dryden: assistant professor of industrial management, School of Industrial Management, Massachusetts Institute of Technology.
- Peter Dubno: assistant professor of management, New York University.
- Dempsey M. Dupree: assistant professor of accounting, School of Business Administration, University of South Carolina.
- Frederick R. Durr, Ohio State University: associate professor of economics, The College of William and Mary.

William Earnhart: instructor in economics, Harding College.

Daniel J. Edwards: economist, Board of Governors of the Federal Reserve System.

Andrew Floriti: instructor in accounting, New York University.

Charles P. Fishbaugh: instructor, department of economics, Bowling Green State University.

Belton M. Fleisher: assistant professor of economics, University of Chicago.

Raymond T. Franklin: instructor in economics, Vassar College.

Lloyd W. Frueh II: instructor in economics, Miami University.

James A. Gherity, Jr.: assistant professor of economics, School of Business Administration, The University of Buffalo.

Charles C. Gillette: instructor in economics, Oklahoma State University.

Floyd Graham: associate professor of personnel management and industrial relations, School of Business Administration, The American University.

Sally Gray: Little Rock University.

Reginald H. Green: assistant professor of economics, Yale University.

Harry Greenbaum: department of economics, South Dakota State College.

Karl D. Gregory, Wayne State University: fiscal economist, Bureau of the Budget, Washington, D.C.

Herbert R. Hahr: Duke University: First Union National Bank, Charlotte, N.C.

Milton C. Hallberg: research associate, department of economics and sociology, Iowa State University.

Daniel Hamberg: professor of economics, The University of Buffalo.

William Hamburger: associate professor of economics, School of Business Administration, University of North Carolina.

Alvin H. Hansen, Harvard University: visiting research professor of economics, Yale University, 1961-62.

Hugh G. Hansen: associate professor of economics, Denver Extension, University of Colorado.

Dale E. Hathaway: Ford Foundation visiting professor of economics, University of Chicago, 1961-62.

Richard G. Heifner: research associate, department of economics and sociology, Iowa State University.

Gerald K. Helleiner: instructor in economics, Yale University.

Harold M. Hochman: instructor in economics, Yale University.

Zoran S. Hodjera: instructor in economics, Yale University.

Eugene C. Holshouser, University of Kentucky: associate professor of economics, College of Business Administration, University of Georgia.

Norman Horsley, United Nations Mission, Libya: visiting associate professor, department of economics, Williams College.

George C. Hoyt: assistant professor, department of labor and management, State University of Iowa.

Norman S. Hubbard: instructor in economics, Yale University.

Winfield Hutton: assistant professor of economics, Hunter College.

Frank H. Jackson, Economic Research Center, University of Hawaii: associate professor of economics, Alma College.

John H. James, University of Indiana: assistant professor of management, University of Florida.

Ralph James: lecturer in economics, University of California, Berkeley.

LeRoy Johnson: assistant professor, department of business administration, Washington State University.

Moon H. Kang, Western State College of Colorado: assistant professor of economics, University of Alaska.

Arthur Kirsch, Long Beach State College: assistant professor, department of economics, Los Angeles State College.

Robert Lee Knox: assistant professor of economics, The College of William and Mary.

Shou-Eng Koo: assistant professor of economics and statistics, John Carroll University.

Frank Kottke: professor of economics, Washington State University.

A. E. Kovacs: assistant professor of economics, department of economics and political science, Assumption University of Windsor.

Arthur Kruger: lecturer in economics, University of Toronto.

Alexis E. Lachman, formerly financial advisor to the Finance Minister of Laos: program officer, U.S. Economic Aid Mission (ICA) in Turkey.

Edward J. Lauesen: lecturer in marketing, School of Business Administration, University of Miami.

Richard L. Leighton: assistant professor of economics, The College of William and Mary.

Fred H. Leonard: instructor in economics, Miami University.

Hall Logan, Texas Christian University: professor of management, University of Arkansas.

Sterling R. McLean, University of Texas: associate professor of business administration, Arkansas State College.

John E. MacNab, St. Lawrence University: economist, Canadian Tariff Board.

Harry Malisoff, Brooklyn College: research associate in unemployment insurance, W. E. Upjohn Institute for Employment Research, Kalamazoo, Michigan.

Howe Martyn: professor of international business, The American University.

Arthur Matson: department of economics, South Dakota State College.

Arnold K. Mattay: assistant trust officer, First National Bank, Dallas.

John R. Matthews, Jr.: assistant professor of economics, The College of William and Mary.

Richard C. Maxon: extension associate, department of economics and sociology, Iowa State University.

Phillip A. May: University of California, Riverside.

Donald C. Mead: instructor in economics, Yale University.

Jacob P. Meerman: assistant professor of economics, Washington State University.

Ian M. Michal: associate professor of economics, Western Maryland College.

Franco Modigliani: professor of economics, Northwestern University.

Alan P. Murray, Lafayette College: member, Tax Analysis Staff, U.S. Treasury Department.

Phillip Nelson, Columbia University: assistant professor of economics, Graduate Faculty of Political and Social Science, New School for Social Research.

John H. Niedercorn: economics department, The RAND Corporation.

Dorothy L. Ochsner: instructor in economics, Oklahoma State University.

James Owens: associate professor of business administration, The American University.

Herbert S. Parnes, Ohio State University: Organization for European Economic Co-operation, Paris, France.

Murray E. Polakoff, University of Texas: professor of business administration, University of Rochester.

Robert J. Porter, University of North Carolina: research associate, Bureau of Business Research, University of Kentucky.

Diomedes D. Psilos: lecturer in economics, University of Maryland.

Olin S. Pugh: Chair of Banking, School of Business Administration, University of South Carolina.

Sher J. Rana, University of Puerto Rico: associate professor of economics, Nichols College.

Mary T. Reynolds: research associate in economics, Yale University.

Hugh Rose, University College, Exeter: associate professor of economics, University of Rochester.

Nancy D. Ruggles: research associate in economics, Yale University.

Luis R. Sanchez: economics department, The RAND Corporation.

G. T. Schwenning, professor emeritus, University of North Carolina: visiting lecturer, School of Business, Florida State University, 1961-62.

Barnard Seligman: instructor in finance, New York University.

Milton Shapiro: visiting instructor, University of Southern California.

Richard U. Sherman, Jr.: Merston professor of economics, Ohio State University.

Nat Simons, Jr.: assistant professor of economics, Michigan State University, Oakland.

Jacques J. Singer: research director, Economic Research Corporation Ltd., Toronto.

J. Graham Smith: instructor in economics, Ohio State University.

William P. Smith: instructor, department of economics, Pennsylvania State University.

Philip E. Sorenson, University of California, Berkeley: instructor in economics, Claremont Men's College.

Herman Stribling, University of Alabama: Alabama College.

Vincent D. Taylor: economics department, The RAND Corporation.

John J. Treacy, Tulane University: assistant professor of economics, Texas A. and M. College.

Richard A. Tybout, Ohio State University: Resources for the Future.

Donald A. Walker, Boston College: assistant professor of economics, Miami University.

Francis Walker, Purdue University: Department of Agricultural Economics, Ohio State University.

Wallace G. Webb: assistant professor of economics, School of Business Administration, University of South Carolina.

Michael T. Wermel, University of Hawaii: director of unemployment insurance research, W. E. Upjohn Institute for Employment Research, Kalamazoo, Michigan.

Gerald A. Weston: instructor, department of economics, Washington State University.

William White: lecturer in economics, Georgetown University.

J. N. Wolfe: professor of economics, University of California, Santa Barbara.

Max S. Wortman: assistant professor, department of labor and management, State University of Iowa.

J. Meade Wright: lecturer in accounting, School of Business Administration, University of North Carolina.

George Wythe: lecturer in economics, Georgetown University.

Stephen A. Zeff, University of Michigan: assistant professor of accounting, Tulane University.

Joseph Zrinyi: instructor in economics, Georgetown University.

Leaves for Special Appointments

Martin L. Black, Jr., Duke University: Fulbright lecturer, Yokohama National University of Japan, 1961-62.

Martin David, University of Wisconsin: Tax Analysis Division, U.S. Treasury, current year.

Rashi Fein, University of North Carolina: assistant to chairman, Council of Economic Advisers.

Victor Fuchs, New York University: Economics and Administration Program, Ford Foundation, 1961-62.

Frank H. Gane, Northwestern University: visiting professor of finance, Graduate School of Business, Stanford University, 1961-62.

Arnold C. Harberger, University of Chicago: special research assignment, Center for International Studies, Massachusetts Institute of Technology, New Delhi, India, 1961-62.

Albert G. Hart, Columbia University: fiscal economist from United Nations to the Treasury of the Government of Chile, 1961-62.

Leo Katz: Ford Foundation visiting professor, School of Business Administration, University of North Carolina, 1961-62.

Harold Q. Langenderfer, University of North Carolina: program specialist, Management Development Institute, Cairo, United Arab Republic, auspices of Ford Foundation.

Thomas A. Mahoney, University of Minnesota: conducted seminars on management development in South Africa summer 1961, sponsored by National Development Foundation of South Africa.

Theodore Morgan, University of Wisconsin: with International Bank mission to Kenya first semester of current year.

Ralph Nelson, South Dakota State College: with International Cooperation Administration as economic advisor to the Ministry of Agriculture, Ankara, Turkey, for two years.

Arnold A. Paulsen, Iowa State University: member of Harvard Advisory Group in Iran.

John Power, Williams College: Economic Development Institute, Karachi, Pakistan, beginning February 1962.

Eugene Rotwein, University of Wisconsin: visiting professor of economics, University of California, Berkeley, 1961-62.

Herbert Schiller, Pratt Institute: visiting research associate professor, University of Illinois Bureau of Economic and Business Research, 1961-62.

Taro Yamane, New York University; Aoyama Gakuin University, Tokyo, Japan, 1961-62.

Resignations

James D. Emery, College of Commerce, West Virginia University.

Bernard P. Herber, University of Arizona.

James F. Huston, College of Commerce, West Virginia University.

Carl C. Malone, Iowa State University, to remain in India with Ford Foundation program.

Miscellaneous

William Goldner, University of California, elected president of Western Section, Regional Science Association.

John E. Sawyer, Yale University, now president of Williams College.

Steven J. Shaw, editor, *Business and Economic Review*, Bureau of Business and Economic Research, University of South Carolina.

Joseph H. Young, University of Miami, now president, Bowling Green State College of Commerce, Bowling Green, Kentucky.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Senior economist: Economics division of New York research institution has opening for senior economist. Ph.D. in economics and experience in economic research. Combined research and teaching background desirable. Familiarity with national income accounts and application of economic theory to analysis of current developments; writing experience and skill essential. Starting salary from \$10,000 to \$15,000, depending on qualifications. Liberal pension and other benefits. P242

Head, Department of Business Administration: Opening in a rapidly growing state college in the South. Doctor's degree in economics or in some field of business administration required. Departmental staff consists of ten full-time faculty members. Rank may be professor and salary may be to \$11,000 for eleven months depending upon qualifications. Write: Dean Thomas J. Stanly, Nicholls State College, Division of Applied Sciences, Thibodaux, Louisiana.

Petroleum economist: A major oil company offers opportunity in the southwest for an economist with a graduate degree, doctorate preferred. Experience in the petroleum industry would be helpful but not required. Position requires ability to conduct independent research on a wide variety of problems related to industry and company operations. Salary depends upon education and experience. Please send résumé giving full account of professional background and experience. All replies will remain strictly confidential. P243

Labor economists: Department of Labor has openings for work in the fields of wages, manpower, employment, labor and industrial labor conditions and related fields. Salaries range from \$6,435 to \$13,730 depending upon experience and training. To apply, send résumé or Standard Form 57 to the Executive Secretary, Board of U.S. Civil Service Examiners, U.S. Department of Labor, Washington 25, D.C.

Head, Department of Economics: Rank of professor. Ph.D. in economics, teaching experience, publications, and experience in directing doctoral dissertations are required. Salary dependent on qualifications. Midwest, September, 1962. P244

Business and economics: Applications are requested for the position of assistant professor, business and economics, fall, 1962. Requirement: Ph.D. and some teaching experience. Division of Social Sciences, University of Minnesota, Duluth 12, Minnesota.

Economics and statistics: The Federal Trade Commission has vacancies for several economists. Candidates should have thorough academic training in economics and statistics. Preference will be given to candidates with training and research experience

in the area of industrial organization. Some are for economists who conduct research in the area of industrial organization and behavior. Others are for economists providing economic assistance in the legal case work of the Commission. Vacancies exist for persons qualifying for Civil Service grades ranging from GS-5 to GS-14. Beginning grades and salaries vary, depending on experience and training. Qualified candidates with Ph.D.'s but without experience may receive a beginning grade of GS-11, which has a salary range of \$7,560 to \$8,860. Vacancies exist up to the GS-14 levels for persons with graduate training and with substantial research experience. The salary range for a GS-14 is \$12,210 to \$13,510. Write: Willard F. Mueller, Director of the Bureau of Economics, Federal Trade Commission, Washington 25, D.C.

Industrial organization, trade regulation, industrial concentration, structure of industry, price behavior: The Antitrust Division of the U.S. Department of Justice has openings for economists in Washington, D.C. Candidates should possess a background of education or experience in above fields. Duties involve the application of economic analysis to the enforcement of the antitrust laws. All positions are within the competitive civil service; entrance salaries range from \$5,355 to \$10,635 per annum. Write: Mr. John W. Adler, Chief, Personnel Office, Department of Justice, Washington 25, D.C.

Economics, money and banking, statistics: Jesuit liberal arts college in East, with enrollment of 800, business and economic staff of four, seeks outstanding man, preferably with doctorate, to teach economics, money and banking, and statistics. Rank and nine-months salary (\$6,000 and up) depends on qualifications. Please send complete résumé to: Dean of Studies, Loyola College, 4501 North Charles Street, Baltimore 10, Maryland.

Accounting: A small collegiate school of business in a metropolitan area in New England has a faculty opening in Accounting Department starting fall of 1962. Prefer applicants under 35 with Ph.D. or substantial completion of work toward Ph.D. Full-time position; rank of instructor or assistant professor; no previous teaching experience necessary; salary open; nine-month school year. P245

Economics: A liberal arts college in the metropolitan Chicago area will have two vacancies in its economics department for September, 1962. Appointments will be made at the instructor or assistant professor level, salary and rank dependent on qualifications. Ph.D. degree with strong theory background required. Salary ranges are \$6,000-\$6,800 for instructors and \$7,000-\$8,000 for assistant professors. Courses to be taught for one vacancy include principles, national income analysis, international economics, and history of economic thought. For the other vacancy, considerable flexibility is present and courses will depend on the interests of qualified applicants. Possible course offerings would be in the areas of corporation finance, comparative economic systems, industrial organization, economic growth and development, and economic history. Address inquiries to Professor H. Murray Herlihy, Chairman, Department of Economics, Lake Forest College, Lake Forest, Illinois.

Economics, principles, public finance, foreign trade, economic history: Liberal arts college (Catholic) has opening for a man with Ph.D. or completing requirements, beginning late January or September, 1962. Emphasis on successful teaching. May appoint at assistant or associate professor level. Starting salary from \$6,000 to \$8,000 for nine months. Write: Brother Julius, Dean, St. Mary's College, Winona, Minnesota.

Economic theory: Man, Ph.D. or near Ph.D., to teach principles and intermediate economics in university in north central region. Some teaching experience is essential. P246

Economics: Instructor or assistant professor in large institution located in metropolitan area in eastern U.S. Work at the beginning will include principles and other undergraduate courses. Possible opening in February and September, 1962. Salary will depend on qualifications. P247

Business economist: Economics department of eastern financial institution. Ph.D. in economics and experience in research and business forecasting. Writing skill and experience essential. Major responsibilities include short-term forecasts of general business conditions, regional and industry studies, and some speaking engagements. Salary depends on background and experience. Please send complete résumé and small photo. All replies will be kept confidential. P248

Financial economist: Economics department of eastern financial institution. Ph.D. in economics preferred, with specialization in finance. Research experience and writing skill essential. Position requires ability to conduct independent research on money and capital market developments, with special reference to company operations. Salary depends on background and experience. Please send complete résumé and small photo. All replies will be kept confidential. P249

Economists Available for Positions

Investments, finance, international relations: Man, 37; M.A., M.S., Ph.D. Broad business experience as well as teaching experience, including administration as department head; various publications; presently professor of finance; excellent references. Desires position teaching above subjects. Available in fall, 1961. E962

Marketing, statistics, economic analysis, money and banking, international economics, public finance, history of economic thought: Man, married; Ph.D. dissertation in process. Nearly 15 years of responsible professional experience in directing and conducting economic and marketing research for management. Fellowship; university teaching. Seeks teaching or business position. E973

Economic theory, labor, finance: Man, in 40's. Twenty years of postdoctoral research, writing, and teaching. Primarily interested in graduate level instruction and research. In *Who's Who in America*, *Who's Who in Commerce and Industry*, etc. E980

Economics, money, banking, and finance, accounting, business law, management: Man, 36; J.S.D., Ph.D. Experienced college economics teacher; professional experience in law and accounting practice. Norman S. Lehrman, 1300A Midland Avenue, Yonkers, N.Y.

Business management, business ethics, marketing, public finance, investments, economic principles, business history and trends: Man, 45, married; M.A., work toward Ph.D. Fifteen years in business management; assistant to chief executives. Also some teaching, newspaper and magazine editorial work, and city planning; presently management consultant; publications; conservative leanings. Wishes to devote full time to teaching and writing. E988

Economic planning, research studies: Man; B.S. Economics, B.S. Foreign Trade, M.A. Business. Eleven years of experience in all phases of comptroller; presently a research analyst with a university. Will relocate. Salary open. E990

Labor economics, labor legislation, collective bargaining, labor market, principles, history of economic thought: Man, 40; Ph.D. Twelve years of college teaching experience; government positions; two books and numerous articles and reviews. E1001

Mathematical economics, economic statistics, national income, economic development and growth: Man, 29; B.Com.(Econ.), Dip. Stat., M.P.H. (Biostat.), course requirements for Ph.D. completed and dissertation in progress (expected to finish by September, 1961). Experience in research and teaching. Desires teaching and/or research position. E1004

Marketing, statistics, business and industrial economics: Man, 40, married; B.A., M.A., Ph.D. credits completed. Fourteen years of experience in designing and conducting economic and market research projects; contributor of articles to various publications. Seeks research position with business or industry. E1005

Public finance, labor economics, history of economic thought, comparative systems, principles: Man, 32; Ph.D., September, 1961. Experience in economic research, labor relations, college and extension teaching; Fulbright scholar; member of state arbitration panel. Currently citizenship clearing house fellow in state and local government; special assistant to mayor of large midwestern city on Ford Foundation-federal government community development project. Available in February, 1962, for full-time teaching in college or university. E1006

Economic theory, history of economic thought, international economics, national accounts, development, European economic history: Man, 41, married; B.B.A., requirements for Ph.D. completed pending dissertation. Teaching experience; fellowship recipient; also business experience. Desires teaching position, northeast or West Coast preferred; salary open. E1007

Economic development, international economics, labor relations: Man, 34; M.P.A. (econ.), Harvard, 1959, M.A. (int. rela.). International economist, U.S. Department of Commerce; 6 years in U.S. foreign service; 2 years in trade-union work; research and dissertation on European economic problems and labor economics; fluent German and knowledge of Serbo-Croatian. Seeks research or administrative position in fields indicated with university, private organization, or business in U.S. or abroad. E1013

Econometrics, applied economic statistics, mathematical statistics, mathematical economics, operations research, input-output analysis, linear programming, micro- and macroeconomic theories, history of economic thought, money and banking, business cycles, international trade and finance: Man, 38, married; B.A., M.A., Ph.D. expected in June, 1962, all in economics. Several years of experience in academic research institutes. Desires teaching and research position in liberal arts college or university for next academic year beginning July or September, 1962. E1014

Economic theory, money and banking, industrial organization, economic development, international economics, public finance: Man, 34, married; Ph.D., Yale University. Several years of full-time teaching experience, plus 5 years as staff economist studying monetary and business conditions at home and abroad, including underdeveloped countries. Currently economist with major monetary institution. Desires return to teaching, in which now engaged part time. E1015

Economic principles, labor economics, history of economic thought, economic history: Man, 45; M.A., Ph.D. Twelve years of teaching and administrative experience in midwestern universities. Currently engaged primarily in administrative work. Seeks teaching position. E1016

Economics, finance: Man, 43; doctorate degree. Twelve years of college and university teaching experience. Desires to relocate in a university or college beginning in September, 1962. Some advanced study possibilities in related fields are desired, which essentially constitute the reason for a contemplated change. E1017

Economic theory, international economics, development: Man, 41, married; Ph.D. from distinguished midwestern university. Ten years of teaching experience in a variety of branches and on all levels of economics; some government (federal) experience. Credentials and personal interview available on request. Desires to relocate in order to concentrate on all or part of above; however, also interested in related fields. Available summer or fall, 1962. E1018

Economic history, economic development, money and banking: Man, late 30's; Ph.D. Eleven years of college teaching; publications include textbook in American economic development. Now associate professor in midwestern university. Prefers location in East. E1019

Planning, research, labor economics: Man, 34, married; B.A., M.A. Four years of general business experience; 3 years as consultant to legislative bodies; presently corporate economist, including long-range planning. E1020

Economics, administration, social sciences: Man, 45; B.A. and M.A. in political science, Ph.D. in economics. Head of a department of economics and business administration in a good liberal arts college for 8 years; previous experience in training and administration in business and in government. Interested in leaving full professorship and tenure position for opportunity with a forward-looking institution. E1021

Principles, theory, managerial economics, private and public finance, statistics, money and banking, business cycles, history of economic thought: Man, 36; Ph.D. Years of successful teaching experience in many areas; some industrial research experience; presently employed. Seeks teaching or corporate position. E1022

Principles of economics, economic thought, real estate, business law, insurance: Man, 40, married; Ph.D. Fourteen years of successful college experience; 6 years in academic administration, including department head. Will consider university teaching or head of a department if position represents an advancement. Especially prefers instruction. E1023

Economics, marketing, finance: Man, 36; B.S., M.B.A., University of California at Berkeley, Ph.D., University of Illinois, 1961. Title of dissertation: "A Study of Financial Expansion in the Basic Chemical Industry, 1947-56." Now on a college faculty in the South. Desires teaching or research position in any big city or California. Salary open. Available in July or September, 1962. E1024

Business administration, industrial organization and policy, personnel management, human relations: Man; A.B., M.B.A., D.S.S. Ten years of teaching experience; 3 years of administration (department head 2; Internal Revenue 1); approximately 10 years in business and industry. Anxious to make a change in June or September, 1962. E1025

Demography and economic growth, economic theory, macro- and microeconomics, history of economic thought, economics and social problems of underdeveloped countries, especially Asia, Africa, and Latin America, economic history, applied economics, money and banking, public finance, agricultural economics: Man, 30, married; B.A. (Honours), M.A., Ph.D. dissertation (economics with reference to demography and economic growth) being completed. Experienced in postgraduate teaching and research. Available from June, 1962. E1026

Economic theory, finance, money and banking, business fluctuations, labor economics: Man, 30; all work towards Ph.D. except dissertation completed in 1959. Years of teaching experience at state universities; presently associate professor in a private college. Desires a permanent and challenging teaching position. Available in June or September, 1962. E1027

Manpower and labor economics: Man, 39, married; Ph.D. Ten years of university teaching; publications; now professor; 1½ years of experience in government and short experience as consultant to government agency. Seeks academic appointment offering opportunity for stimulating teaching in a research-conscious environment. E1028

Marketing, advertising, finance, management, economics: Man, 29; liberal arts graduate, M.A., completing Ph.D. in 1962. Fulbright travel grantee. Experience in research, sales, teaching. Will consider teaching in U.S. 1962-63 but seeks position in India. Résumé available. E1029

Finance, industrial management, mathematics: Man, married; B.A. in chemistry, M.S. and Ph.D. in business administration. Teaching experience; business experience as business manager and chemical purchasing agent; currently professor and head of department of eastern college. Desires teaching position at undergraduate and/or graduate level and/or administrative position. Available in June and/or September, 1962. E1030

Economics, economic history, Russian history, marketing: Man, 24, married; B.A. (Economics), M.S. (Industrial Economics), Purdue University. Two years of teaching experience in a liberal arts college. Seeks a position teaching economics in a college or university located near a graduate school where part-time work on the Ph.D. may be begun. Will attend A.E.A. meetings in New York. James P. Egan, 724 Davis Street, Fort Wayne, Indiana. E1031

Economic theory, international economics, agricultural economics: Man, in early 40's; M.A. in Economics. Fluent French; working knowledge of German and Italian. Desires teaching and/or research position. E1031

Economic principles, labor economics, labor law, public utilities, economic thought, comparative economic systems, economic history: Man, 31, married; B.A., M.A., Ph.D. dissertation in process. Six years of full-time college teaching; member of state panel of arbitrators; consultant to large corporation; recipient of research grant; supervisor of State Department project; experience as research assistant and job analyst. Desires position at liberal arts college or university. Available in September, 1962. E1032

International economics, Latin America, underdeveloped areas, Middle East, economic development, world regional blocs, international financial organizations: Man, 44, married; M.A., Ph.D. Experienced in government research; research in progress; 10 years of teaching experience; presently teaching in a large midwestern university. Will consider other opportunities. Planning to attend the A.E.A. meeting in New York. Available either in June or September, 1961. E1033

Principles, labor economics, history of labor, comparative economic systems, personnel: Man, 36, married; Ph.D. from large midwestern university. Three years of successful college teaching; 2 years as director of internship program in industrial relations. Seeks teaching position with opportunity for research. Available in September, 1962. E1034

International economics, money and banking, economic development: Man, 31, married; M.A. Canadian born and educated; speaks Italian, French and reads others. Government and teaching experience. Desires teaching position. Joseph P. Caccamo, 2127 Halifax Crescent, Calgary, Alberta, Canada.

Marketing economics, market research, distribution analysis, corporate planning, advertising research: Man, 44; M.A. (economics), Columbia University. Over 15 years of experience performing technical and economic market surveys in the chemical, petroleum, and agricultural field. Presently unaffiliated and seeking a research or administrative position with industry or university. E1035

Industrial organization, public finance, economic theory: Man, 38; Ph.D. (Ivy), LL.B., LL.M. Member of state and federal bars. Desires an administrative position with private industry or a teaching-administrative position with a university. E1036

Economic analysis, statistics, national income analysis, economic development in Near East and Africa, labor, economic theory, history of economic thought: Man, 33, married; B.A. (sociology and economics), M.A. (area studies), course requirements for Ph.D. in economics completed. Presently employed as economist with federal government. Desires teaching, research, or private industry position in New York City or overseas. E1037

International economics and finance, economic development and history, money and banking, corporation finance, comparative economic systems: Man, 33; Ph.D. Teaching and business research in U.S., Canada, and Europe; publications. Seeks teaching position with opportunities for productive scholarship and research. E1038

Economics, economic statistics, money and banking, public finance: Man, 41, married; candidate for M.A. in economics. Ten years of experience with U.S. government in translating from English to Chinese and vice versa on economic and other subjects and in compiling economic reports, chronology, and directories. Knowledge of French. Desires a career position with U.S. government or bank. E1039

Economic theory, history of economic thought, industrial organization, government and business, economic development: Man, 46; Ph.D. Now engaged as economic and marketing consultant. Has had 12 years of teaching experience; 10 years consultation in government and international agencies. Seeks opportunity to teach advanced university courses. Expects appointment of at least associate professorship rank and salary of \$9,500. Will attend A.E.A. meetings in New York. E1040

L'INDUSTRIA

Review of Political Economy

Editor: Ferdinando di Fenizio

Summary of Issues n. 3/1961

O. MORGENSTERN	A new look at economic time series analysis
S. CHERUBINO	Observations on Some Fundamental Economic Concepts and on the Rate of Growth
V. AMATO	A Matrix Process for the Solution of Dynamic Multiplier
A. G. PAPANDREOU	Economics as a Science
M. G. KENDALL	Natural Law in the Social Sciences
S. RICOSSA	Business Cycles and the "Cassa Integrazione"
I.d.f.	Italian Businessmen Take an Optimistic View of the Future—Prices and Wages—New Markets for Italian Exports—A Comment on Current Talks between U.K. and the E.E.C.—The Agreements of Punta del Este.

Each number contains Summaries in English of the original articles—Annual subscription rate for Abroad: Lit. 6.000=, Anyone interested may send for a sample copy.

Editorial and Administrative Offices: Via Farneti, 8—Milano (Italy)

BACK NUMBERS WANTED AMERICAN ECONOMIC REVIEW

The Association will pay **seventy-five cents** a copy for the following issues (sent prepaid and in good condition):

1911 March	1920 March	1947 March
June	September	June
1913 September	December	1948 May
December	1923 June	June
1915 December	1924 March	1949 March
1916 March and sup.	June	1956 March
June	1927 March sup.	May
December	June	September
1918 June	1943 June	1957 December
December	1944 March sup.	1958 March
1919 March	1946 March	1960 March
June	May	September

Send to

American Economic Association
Northwestern University
Evanston, Illinois

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

At Bell Telephone Laboratories, mathematician Sidney Darlington has contributed notably in developing the art of circuit analysis.

IT HAPPENS IN THE MIND...

... It is essentially a thing of the mind for it works through concepts, symbols and relationships ... it helps man to analyze and synthesize the complex phenomena of the universe and himself ... it works in many ways to advance electrical communications:

IT IS CALLED MATHEMATICS

At Bell Telephone Laboratories, mathematics works powerfully to solve problems involving complex data. Intriguingly, too, the mathematical approach: led to the invention of the electric wave filter... disclosed a kind of wave transmission which may some day carry huge amounts of information in waveguide systems... foretold the feasibility of modern quality control... led to a scientific technique for

determining how many circuits must be provided for good service without having costly equipment lie idle.

For each creative task, Bell Laboratories utilizes whatever serves best—mathematical analysis, laboratory experimentation, simulation with electronic computers. Together they continue to assure the economical advancement of all Bell System communications services.



BELL TELEPHONE SYSTEM

The Real National Income of Soviet Russia Since 1928

By Abram Bergson. By selective use of raw Soviet statistical materials, Mr. Bergson has found independent means of measurement for a systematic reappraisal of Soviet achievements. Focusing attention on the period of the plans to 1955, he attempts as well a comparison between economic trends in the USSR and the USA, and, finally, examines the implications for Russia's future progress.

A RAND Corporation Research Study

\$8.75

Dilemmas of Progress in Tsarist Russia

LEGAL MARXISM AND LEGAL POPULISM

By Arthur P. Mendel. The author analyzes Legal Populism and re-evaluates it on the basis of recent experience in underdeveloped economies. He investigates the factors that turned intellectuals from populism to Marxism in the 1890's, relating this process to the concurrent industrialization of Russia. His final theme is the transition from Marxism to "idealism" on the part of another important but neglected group, the Legal Marxists.

\$7.00

American Capital and Canadian Resources

By Hugh G. J. Aitken. With their major industries controlled by the U. S., many Canadians fear that they are becoming an economic colony. Mr. Aitken explores the implications of the problem, clarifies its origins and examines its non-economic aspects.

\$5.00

Competition in the Aluminum Industry, 1945-1958

By Merton J. Peck. The aluminum industry, once a classic example of monopoly, now has six producers. Mr. Peck analyzes the change, due to anti-trust action, both formal and "informal" (through federal agencies and Congressional committees).

\$5.25

HARVARD UNIVERSITY PRESS

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

The Machinists

A NEW STUDY IN AMERICAN TRADE UNIONISM

By Mark Perlman. A truly authoritative study of a "model American union" (IAM has long been known as one of the most ethical and efficient), based on complete access to the organization's files. It includes documented evidence of the difficulties and analyzes both sides of the many controversies IAM has faced.

\$7.50

Trade Union Officers

**A STUDY OF FULL-TIME OFFICERS,
BRANCH SECRETARIES AND SHOP
STEWARDS IN BRITISH TRADE UNIONS**

By H. A. Clegg, A. J. Killick and Rex Adams. Problems of trade union officers are now of major importance in England. This study, based on union records, local surveys, and questionnaires, replaces theory with fact, upsets many prejudices, and throws light on the union bureaucracies and their officers' circumstances.

\$6.00

Samuel Bailey and the Classical Theory of Value

By Robert M. Rauner. Samuel Bailey's attack on Ricardo's theory of value, published in London in 1825, was based on the proposition that economic value is a mental phenomenon, and is essentially relative. Mr. Rauner assesses the impact of Bailey's writings on Malthus, Mill, and others, and examines Bailey's positive contributions to value theory and their relation to later utility theory.

\$5.50

The Agricultural Policy of Muhammad 'Alī in Egypt

By Helen Anne B. Rivlin. The first rigorous analysis of all aspects of Muhammad 'Alī's domestic policies—serves as an object lesson to economic planners for underdeveloped countries, and offers startling conclusions necessitating a complete reassessment of Muhammad 'Alī as a reformer. \$8.00

HARVARD UNIVERSITY PRESS

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers



THEORIES OF ECONOMIC GROWTH AND DEVELOPMENT

IRMA ADELMAN

Past and current theories about the evolution of an economy are used in this book to construct a general framework for the consideration of the problems of underdeveloped countries. A new model of economic growth and development is presented, within which the theories of Adam Smith, Ricardo, Marx, Schumpeter and the modern Neo-Keynesians can legitimately be treated as particular cases. Differences in long-term economic trends, growth-promoting and growth-inhibiting forces, and methods of artificial stimulation of economic trends are considered. \$5.00

THE STORY OF FABIAN SOCIALISM

MARGARET COLE

An indispensable work for those interested in the genesis of the modern British Welfare Society, this book by Margaret Cole offers more than a history of the Fabian Society itself. It is the only chronicle of this unique and influential movement to appear since 1916. Dealing with an entire era of social reform, the book takes in Guild Socialism, the Labour Research Department, the Socialist League, and the New Fabian Research Bureau. A Fabian leader herself, and wife of the late G. D. H. Cole, Mrs. Cole presents an objective and well-documented study. Illustrated. \$6.50

Order from your bookstore, please

STANFORD UNIVERSITY PRESS

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

**HARPER & BROTHERS
HAS JUST PUBLISHED . . .**

CONFLICT AND DEFENSE

by Kenneth E. Boulding

Develops an integrated theory of conflict as a dynamic social process, and applies it to many fields of social life. 349 pp. \$7.00

AMERICAN COOPERATIVES:

**Where They Came From, What They Do, and
Where They Are Going**

by Jerry Vocanis

A fresh and persuasive statement of consumer cooperatives (history, present activity and problems, future) and how they benefit the public. 226 pp. \$4.75

FINANCIAL PLANNING and POLICY

by Ernest W. Walker & William H. Baughn

A solid springboard for decision-making; provides an orderly system for analyzing the major financial problems of the business firm. 506 pp. \$8.00

HARPER & BROTHERS 49 E. 33d St., N.Y. 16, N.Y.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers



MATHEMATICAL MODELS OF ECONOMIC GROWTH

By JAN TINBERGEN, Netherlands School of Economics; and H. C. BOS, Yale University. *Economic Handbook Series*. Available February, 1962

This work presents clearly and practically a simple survey of the mathematical models for long-term planning. Of value for practical planning or the teaching of development on the graduate level, the "models" are presented in an order of increasing complexity. Valuable new material on second-order capital goods; distinction between national and international industries; use of world demand schedules in long-term planning. Calculus employed.

THE FIRM: Microeconomic Planning and Action

By NEIL W. CHAMBERLAIN, Yale University. 448 pages, \$7.95

This advanced undergraduate text provides a frame-work within which economic theory of the firm can be meaningfully set and within which business policies can most fruitfully be analyzed. It portrays the planning function as a profitable meeting ground for the scholar and practitioner. Emphasized is the importance of the planning function to the firm and the economy.

AMERICAN ECONOMIC HISTORY

Edited by SEYMOUR E. HARRIS, Harvard University. 576 pages, \$7.95

Twenty-two outstanding authors have written 17 chapters on the economic history of the United States since 1800. Experts write on the field in which they are particularly knowledgeable. Contributors include: Arthur Schlesinger, Jr., Alfred Conrad, Lloyd Ulman, Douglass North. There are chapters on mobilization and war; population and immigration; the pattern of employment since 1800; natural resource development; transportation; development of trade and labor unions; agricultural and regional income trends.

THE GEOGRAPHY OF ECONOMIC ACTIVITY

By RICHARD S. THOMAN, Queens University, Ontario. *McGraw-Hill Series in Geography*. 608 pages, \$8.95

The divisions between technically advanced and underdeveloped countries and between Communists and non-Communist realms of influence are emphasized in the process of trying to understand more fully the location and functioning of economic activity in various parts of the world. Avoiding an encyclopedic recital of elementary economic and geographic facts, the author develops "a definition of the field" and applies the definition to selected world patterns of economic activity. Designed for introductory courses.

ECONOMIC ISSUES OF THE 1960'S

By ALVIN H. HANSEN, Harvard University. *Economic Handbook Series*. 248 pages. \$5.50

An eminent economist views the great issues of the 1950's in the context of the 1960's. The author discusses such issues as inflation, growth, economic development, monetary and fiscal policy, spending pattern of the American people, current state trade cycle theory and its control, and the economic state of India where he spent a year in 1958.

McGRAW-HILL BOOK COMPANY, INC.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

MANAGEMENT OF BANK FUNDS, Second Edition

By **ROLAND I. ROBINSON**, Michigan State University. Available January, 1962

This updated and reorganized revision deals with the central managerial problems of any commercial bank; to manage its funds profitably with adequate liquidity. Resolution of the conflicting requirements of adequate liquidity and of profitability is the core managerial problem of commercial banks. The book generalizes the problem to furnish a unified philosophy applicable at all stages of the business cycle—whether money markets be tight or loose. New chapters on: day-to-day management of money positions; investment in state and local government securities; U. S. Government security market.

INDUSTRIAL ORGANIZATION AND MANAGEMENT, Fourth Edition

By **LAWRENCE L. BETHEL**, President of Fashion Institute of Technology; **FRANKLIN S. ATWATER**, Vice President, Manufacturing, The Fafnir Bearing Company; **GEORGE H. E. SMITH**, Lawyer on American Economic Development, Government and Business; and **HARVEY A. STACKMAN, JR.**, Director, Management Services, Temple University and President, Executive Development Council. Available January, 1962

This text surveys all phases of industrial organization and management, emphasizing the interrelationship of the basic functions and principles essential to the efficient and profitable operation of business and industrial enterprises. The fourth edition has been extensively revised to include the latest developments, trends, and viewpoints in industrial technology and management. Two new chapters on "Managerial Controls" and "International Expansion of American Business Enterprises." All other chapters revised to include new developments in industrial operations.

PRACTICAL FINANCIAL STATEMENT ANALYSIS, New Fifth Edition

By **ROY A. FOULKE**, Dunn & Bradstreet, Inc. *McGraw-Hill Accounting Series*. 913 pages, \$8.95 (text edition)

In this updated edition the author presents in practical language a description of the techniques used in analyzing what is behind the figures in the four important statements used in portraying the financial condition of commercial and industrial businesses—the balance sheet, the income statement, the reconciliation of surplus, and the source and application of funds statement.

MODERN ECONOMIC ANALYSIS

By **WILLIAM FELLNER**, Yale University. 459 pages, \$7.50

The text examines modern micro-theory; macro-theory, including business cycles; the theory of economic growth; and the essentials of welfare economics. These theories are considered in terms of policy problems and the presentation of modern economic theory is always viewed in the light of its historical antecedents. A two-semester advanced textbook.

330 West 42nd Street

New York 36, N.Y.

Please mention **THE AMERICAN ECONOMIC REVIEW** When Writing to Advertisers

NOTABLE NEW BOOKS:

ECONOMIC PERFORMANCE:

An Introduction to Economics

HENRY H. VILLARD

The City College of New York

How economies develop . . . the reasons for their particular stage of achievement—these are major themes in this new and exciting book. The text offers provocative ". . . estimates of waste due to malperformance in both economizing and achieving full employment." Today's various economic systems—advanced and underdeveloped, enterprise and collectivist—are studied and contrasted.

Dec., 1961, 672 pp., \$6.00 tentative

MANAGERIAL FINANCE

J. FRED WESTON

University of California, Los Angeles

The important contributions financial managers make to planning and control in business management form the keystone of this new book for students of corporation finance and financial management. Emphasis is placed upon the tools as well as the goals of decision making. Extensive illustrative material, brief exercises, and case problems.

Jan. 1962, 550 pp., \$8.50 tentative

CASES AND READINGS IN MARKETING

RICHARD H. BUSKIRK

University of Colorado

Introducing a new casebook with 37 readings and 50 cases designed to supplement any introductory marketing text. (Especially suitable with the author's recently published *Principles of Marketing: The Management View*.) The cases—actual business situations—serve to stimulate student interest by emphasizing current marketing problems. Instructor's manual available.

224 pp., \$2.25 paper, 1961

ALSO NOTEWORTHY . . .

BUSINESS ORGANIZATION AND PUBLIC POLICY:

A Book of Readings

HARVEY J. LEVIN, Hofstra College

1958, 572 pp., \$6.25

THE PRICE SYSTEM AND RESOURCE ALLOCATION:

Revised Edition

RICHARD H. LEFTWICH, Oklahoma State University

1960, 393 pp., \$4.75

HOLT, RINEHART AND WINSTON, N. Y.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

A New Revision **ECONOMICS—Principles and Applications**

4th Edition—By J. H. Dodd, Mary Washington College

University of Virginia

Thomas J. Hailstones, Xavier University, Cincinnati

The changes and improvements in this major revision entail a rearrangement of content, some completely rewritten chapters, new subject matter, and a new emphasis on economic analysis. Current economic thought is reflected in all discussions. The section of the book devoted to macroeconomics has been strengthened and historical matter minimized. A balance is maintained between macroeconomics and microeconomics.

An optional workbook is available. A series of objective tests is furnished free each year for each student using the textbook.

A New Title

BASIC ECONOMICS

By Thomas J. Hailstones, Xavier University, Cincinnati

This one-semester textbook provides an integrated presentation of macroeconomics. The text material moves from basic principles to a high level of economic analysis. It discusses the role of government and offers a practical guide to the use of government action in the economy.

The measurement of national production and income, the price level, and employment are explained. Many important reservations, restrictions, and fallacies in the interpretation and use of these concepts are also pointed out. The Flow of Funds and the determinants of the Gross National Product are adequately treated.

SOUTH-WESTERN PUBLISHING CO.

(Specialists in Business and Economic Education)

Cincinnati 27 New Rochelle, N.Y. Chicago 44 Burlingame, Calif. Dallas 2

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

Now available . . .

CHANGES IN THE INDUSTRIAL DISTRIBUTION OF EMPLOYMENT, 1919-59,

by John P. Henderson

This monograph investigates the nature and direction of changes in the industrial distribution of employment over the past four decades. The study also evaluates the possible consequences of changing productivity on service occupations and discusses the pattern of industrial employment likely to emerge in the years ahead.

104 pages, \$1.75

AN INVESTIGATION OF RESPONSE ERROR, by John B. Lansing, Gerald

P. Ginsburg, and Kaisa Braaten

The second in a series of technical reports presenting findings of the Consumer Savings Project of the Inter-University Committee for Research on Consumer Behavior, this monograph explores for the first time the magnitude and direction of response and nonresponse errors in the report of assets and debts in consumer financial surveys. It is based on a series of experimental studies designed specifically to measure such errors.

Clothbound. 300 pages, \$2.75

Bureau of Economic and Business Research

University of Illinois

Box 658, Station A

Champaign, Illinois

OPPORTUNITIES IN WASHINGTON AND ABROAD WITH

SRC

SURVEYS & RESEARCH CORPORATION

1010 VERMONT AVENUE—WASHINGTON 5, D.C.

TELL US IN CONFIDENCE WHETHER YOU ARE AVAILABLE—FULL-TIME,
PART-TIME, SABBATICAL YEAR—YOUR FIELDS: ECONOMIC DEVELOP-
MENT, MANAGEMENT ECONOMICS, INDUSTRIAL ECONOMICS,
STATISTICS, OPERATIONS RESEARCH, DATA PROCESSING

An Equal Opportunity Employer

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

from OXFORD

Ready in January,
a new text and workbook
for the introductory course

ECONOMICS

by **Abraham L. Gitlow**, Professor of Economics, School of
Commerce, Accounts, and Finance, New York University

The central theme unifying this new text is the major issue of our time, namely, the contest between a free market system and an authoritarian system. The chief economic problems of today—economic growth, full employment, national security, social welfare—are considered as aspects of the central issue, thus giving the study vitality and meaning.

Written in a dynamic style that creates and sustains reader interest, the volume affords a sound, up-to-date introduction to economic principles and problems. Its flexible organization makes it readily adaptable to variations in course structure. Ideas and concepts are developed clearly and carefully. The application of economic principles is given thorough treatment. In its level of analysis, the book is sufficiently rigorous to challenge the student, but does not burden him with excess detail. Summaries and suggested readings accompany each chapter. The graphic materials, especially designed for the text, serve as excellent visual study aids.

January 1962 768 pages 175 figures and tables \$7.50

ECONOMICS WORKBOOK

by **Abraham L. Gitlow** and **Daniel E. Diamond**,
New York University

A valuable teaching adjunct, this workbook has been prepared for use with Gitlow's **ECONOMICS**. The chapters parallel those in the text and include both objective questions and essay topics.

January 1962 190 pages paperbound \$2.00

OXFORD UNIVERSITY PRESS

417 Fifth Avenue New York 16, N.Y.

For Students of
Economics
and Business

ELEMENTS OF MODERN STATISTICS

By Boyd L. Nelson
University of Maryland

This text provides students of economics and business with sufficient knowledge to apply statistics, to understand their power and usefulness, and to realize their limitations. The book accomplishes this by emphasizing statistical concepts, statistical inference, and the pervasiveness of sampling. The concise writing breaks through the mathematical "language barrier" and makes the material readily understandable to those with a minimal mathematical background. Sufficient material is included to lay a solid foundation for more advanced courses, however.

"An unusually good elementary text. It is well-organized and has a good elementary treatment of statistical theory without an excess of descriptive materials." Roger L. Burford, Georgia State College of Business Administration.

366 pages

illustrated

\$6.00

APPLETON-CENTURY-CROFTS, Inc.
34 West 33rd Street, New York 1



LA REFORMA AGRARIA

FONDO DE
CULTURA
ECONOMICA

Av. Universidad, 975
México 12, D. F.

EDMUNDO
FLORES
TRATADO DE
ECONOMIA
AGRICOLA
FONDO DE CULTURA
ECONOMICA

exigencia
económica
y
social
en
toda
AMERICA
LATINA

El libro fundamental sobre este tema, de un autorizado economista y agrónomo mexicano, que recoge las últimas experiencias continentales

(Empastado. 442 pp. \$ 50.00)

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

Quality Earns Recognition

Grey-Elliott • Watson • Benson

ECONOMIC ISSUES AND POLICIES: Readings in Introductory Economics. Edited by **Arthur L. Grey, Jr. and John E. Elliott.** "Certainly one of the best selections of readings for the elementary economics course to be published in many years."—M. K. Ohlson, University of Colorado.—New and already in a second major printing. 420 pp. paper 1961 \$3.75

ECONOMIC POLICY: Business and Government by **Donald Stevenson Watson.** "This book is a comprehensive and balanced treatment of problems in public control and policy."—Walter Adams, Michigan State University. 829 pp. 1960 \$7.50 Under the general editorship of Carl Kaysen, Harvard University.

THE ECONOMICS OF PUBLIC EDUCATION by **Charles S. Benson.** "Benson's **THE ECONOMICS OF PUBLIC EDUCATION** is one of the finest books in the field. It takes the approach that educational finance is a part of public economy and therefore school finance is related to economic resources. The basic concepts and principles of economics are applied to schools and their problems. This gives the text sound scholarship, penetrating analysis of problems of taxes and support. It disposes neatly of the criticism that the study of school finance is narrow and parochial in viewpoint. This book is a distinct contribution to the literature of school finance and economics."—Adolph Unruh, Washington University, St. Louis. 580 pp. 1961 \$7.00



Houghton Mifflin Company

BOSTON • NEW YORK • ATLANTA • GENEA, ILL. • DALLAS • PALO ALTO

Please mention **THE AMERICAN ECONOMIC REVIEW** When Writing to Advertisers

OXFORD BOOKS

OF EXCEPTIONAL INTEREST

PATTERNS OF TRADE AND DEVELOPMENT

By RAGNAR NURKSE. This is the first American publication of the late Professor Nurkse's two last lectures, with a closely related appendix on the relationship between international trade and economic growth in underdeveloped areas. The lectures are sophisticated in approach but simple in language; the appendix gives a more precise formulation for the student of economics. \$1.75

FEDERALISM AND ECONOMIC GROWTH IN UNDERDEVELOPED COUNTRIES

A Symposium

By U. K. HICKS, F. G. CARNALL, J. R. HICKS, W. T. NEWLYN and A. H. BIRCH. Based on the proceedings of a small working party conference held at Exeter, England in September, 1959, this book considers critically the experiences of emergent countries pursuing an ambitious policy of economic development within a federal framework of government. \$4.00

OIL IN THE MIDDLE EAST

Second Edition

By S. H. LONGRIGG. The second edition of Brigadier Stephen Longrigg's definitive book continues the narrative of oil exploration and development up to mid-1960, and concludes with a survey of the field from significant angles at that date. *Maps. (Royal Institute of International Affairs)* \$5.50

AN AFRICAN ECONOMY

A Study of the Economic Development of the Nyanza Province of Kenya, 1903-1953

By HUGH FEARN. This study traces half a century of development in an agrarian economy which has become the most advanced of the mosaic of tribal economics in Kenya. It shows how Nyanza became the "granary of East Africa" through an extension of marketing opportunities for surplus foodstuffs grown by Africans. *Statistical appendices; 7 plates; 5 maps.* \$5.60

At all bookstores

OXFORD UNIVERSITY PRESS, 417 Fifth Avenue, New York 16

Princeton



UNIVERSITY
PRESS

The Growth of Public Expenditure in the United Kingdom

By Alan T. Peacock and John Wiseman

Before this study, the facts about British government expenditures since 1890 had not been brought together in any convenient source. In gathering data for this volume, the authors found a lack of any satisfactory explanation of the changing character and importance of the public economy. They therefore include a new theory to explain, rather than justify or condemn, the growth performance of public expenditure. *Published for the National Bureau of Economic Research.*

256 pages. \$5.00

Output, Input, and Productivity Measurement

By the Conference on Research in Income and Wealth

The contributions in this volume indicate that substantial progress is being made toward a comprehensive set of real output, input, productivity, and price estimates for the economy as a whole, for its major sectors, and for individual industries in the United States and abroad. The suggestions offered will make possible more meaningful analyses of dynamic economic processes and hence more effective policies in areas affected by productivity change. *Published for the National Bureau of Economic Research.*

316 pages. \$10.00

Order from your bookstore, or

PRINCETON UNIVERSITY PRESS, Princeton, New Jersey

The College Department of
RANDOM HOUSE
is pleased to announce that
WILLIAM L. LETWIN
Massachusetts Institute of Technology
has been appointed
Editorial Advisor in ECONOMICS

The College Dept.

301 Madison Avenue, New York

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

Economic Growth in the United States

Its History, Problems, and Prospects

BY SUMNER H. SLICHTER

Edited by John T. Dunlop

"This small volume is concerned with a large and fundamental subject: the future of the American economy and its economic institutions. In it Professor Slichter presents a definitive statement of his views as to the determinants of the growth of the American economy and the evolution of its economic institutions. Nowhere else in his writings are these subjects treated so extensively and explicitly. . . . His views are of particular interest in a period of challenge from abroad and serious debate from within over the capacity of the American economy to meet its challenges. . . . This book was designed not only as a major intellectual work but also as a reflection of Professor Slichter's personal philosophy, his detachment, his frankness and outspoken judgments." (From the introduction by John T. Dunlop.)

This book was virtually completed at the time of Professor Slichter's death. His colleague John T. Dunlop has prepared the manuscript for publication. \$5.00

Keynesian Economics in the Stream of Economic Thought

BY HARLAN L. McCracken

This book places in historical perspective the New Economics of John Maynard Keynes which has greatly influenced economic policies in the United States and other nations since the great depression. Professor McCracken clearly traces the line of descent of many of Keynes's "new" ideas, some of them back to Malthus and Lauderdale. In one of the most significant chapters, the author draws original and striking parallels between Keynes and John R. Commons, whose work is discussed in detail in relation to both the old and the new economics. Finally, Professor McCracken looks into the future to predict which Keynesian theories will stand the test of time and which will give way to new theories. \$5.00

From your bookseller or

Louisiana State University Press • Baton Rouge

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

RONALD books for business and economics courses . . .

FUNDAMENTALS of ECONOMICS

RUBY TURNER MORRIS, Connecticut College

This readable new textbook provides a comprehensive background in economic theory and a detailed description of how the economic order operates. Throughout, it stresses the practical application of theory in order to make economics more teachable to the beginning student. It offers a unified, balanced treatment of microeconomics and macroeconomics;

supply and demand; monopoly; pure competition; etc. The analysis is distinguished for its clarity; important interrelationships, analytical comparisons, historical references, and contemporary applications are emphasized. Hundreds of original charts illustrate and focus the discussions. *Student Workbook and Instructor's Manual available. 1961. 878 pp.* \$7.00

MANAGERIAL and INDUSTRIAL ECONOMICS

JOHN A. SHUBIN, New York University

A thorough analysis of the economic concepts underlying the formulation of profitable business programs and policies. Book analyzes the structural design of a composite industry and a representative firm; environmental influences on the business enterprise; short- and long-term projections of economic and business trends; etc. Emphasis is placed on the in-

teraction of cyclical fluctuations, demand behavior, and secular change with business planning. Numerous examples and tables are integrated with the text; stimulating cases help the student to develop an insight into the economic nature of management decision-making. 1961. 518 pp., illus. \$7.50

PERSONAL FINANCE — Third Edition

ELVIN F. DONALDSON and JOHN K. PFAHL
—both The Ohio State University

This popular new textbook provides an authoritative discussion of the wide range of problems involved in the management of personal finances. In readable, non-technical style, it covers income and budgeting of financial resources, uses of credit, home buying, etc. Third Edition offers expanded coverage of estate and

retirement planning; U.S. Savings Bonds; life, property, casualty, accident and sickness insurance; federal income tax law; etc. Includes a wealth of new illustrative material and practical case-problems. *Instructor's Manual available. 3rd Ed., 1961. 717 pp., illus.* \$7.50

ELEMENTS of BUSINESS ENTERPRISE

DWIGHT L. GENTRY and CHARLES A. TAFF—both University of Maryland

Designed for beginning students, this textbook interrelates the functions of management and integrates the role of business enterprise in the social and economic order. Avoiding confusing detail, it provides a balanced presentation of the entire scope of business administration. Book stresses the sound management principles that underlying the organization, operation, and control of the various

types of our business enterprise system and how it works to produce and distribute goods and services. All areas of operation and administration are treated with proper emphasis. Discussion topics and case-problems provide the student with practical decision-making situations. *Instructor's Manual available. 1961. 705 pp., illus.* \$7.00

THE RONALD PRESS COMPANY

15 East 26th Street, New York 10, New York

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

Announcing an Important New Book in Economics

Techniques of Monetary Control

BY JOSEPH ASCHHEIM 164 pages \$4.50

"Economists will be indebted to Joseph Aschheim for his intensive study of contemporary, including potential, instruments of monetary policy, and for expressing in vigorous style his own conclusions about their relative effectiveness and desirability. Aschheim has written an excellent and forceful book which is scholarly in the sense that it exhibits a mastery of many details of monetary control. In successive chapters are treated: (1) open-market operations vs. reserve requirement variation, (2) security reserve requirements, (3) the bills only controversy, (4) the rediscounting mechanism, (5) moral suasion, (6) the financial intermediaries' controversy, and (7) regulation of time deposits."—*The Southern Economic Journal*

"It should prove decidedly valuable to teachers of courses in advanced money and banking, government finance and money markets. Careful perusal by the 'experts' is heartily recommended. In fact, although the recent report of the National Commission on Money and Credit undoubtedly will receive greater attention, within its narrower limits this volume is decidedly superior."—*Journal of Finance*

Other Important Books on Economics from The Johns Hopkins Press

THE POLITICAL ECONOMY OF MONOPOLY

Fritz Machlup 560 pp. \$5.50

THE ECONOMICS OF SELLERS' COMPETITION

Fritz Machlup 602 pp. \$6.50

combined price for both books \$10.00

THE FEDERAL ANTI-TRUST POLICY

Hans Thorelli 674 pp. \$8.00

THE FISCAL SYSTEM OF VENEZUELA: A REPORT

Carl Shoup, et al. 512 pp. \$8.75

THE DESIGN OF DEVELOPMENT

Jan Tinbergen 128 pp. \$2.50

TRADE, AID, OR WHAT?

Willard Thorp 240 pp. \$4.50

GERVAISE: THE SYSTEM OR THEORY OF THE TRADE OF THE WORLD

J. M. Letiche and G. Heberton Evans, Jr., eds. 48 pp. \$2.00

The Johns Hopkins Press • Baltimore 18, Maryland

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

NEW BOOKS OF EXCEPTIONAL INTEREST

The Measurement of Social Welfare

by JEROME ROTHENBERG, *Northwestern University*

What should be the criterion by which social welfare is measured? In answering this question, the author analyzes present difficulties and examines in detail psychology and social sciences from an economics viewpoint. The purpose of the examination and analysis is to find ways the welfare economics can be made useful. The author presents a new approach to the field based on empirical findings about group census.

1961

357 pp.

Text price: \$7.95

Money and Credit

Their Influence on Jobs, Prices, and Growth

The Report of the Commission on Money and Credit

This long-awaited report presents the first complete study of American economic goals and financial institutions since the Aldrich Report of 1908. This complete impartial Report focuses on three major economic goals for the U.S.: a low level of unemployment—price stability—and a higher rate of economic growth. The Report concludes almost three years of research, study and discussion by the Commission, which consists of 25 distinguished executives from financial, industrial and labor groups.

1961

Text Edition, Paperbound: \$2.00

What Price Economic Growth?

Edited by KLAUS KNORR and WILLIAM J. BAUMOL

Both of Princeton University


Here is a new book for all readers who are concerned with these questions—*Is economic growth compatible with our free enterprise system? Must government regulation be increased? How can we avoid unemployment?* This book looks at the real costs and problems of a growth program vital to American politics and our international position.

1961 SPECTRUM  Paperback: \$1.95 Clothbound Edition: \$3.95

Revolution, Evolution, and the Economic Order

by ALLEN M. SIEVERS, *University of Florida*

A roundtable report on the economic and social crisis confronting the U.S. today, by way of "dialogues" between eminent American economists—via their representative works.

1962 SPECTRUM  Paperback: \$1.95 Clothbound Edition: \$3.95

Write for approval copies: BOX 903

PRENTICE-HALL, INC., Englewood Cliffs, New Jersey

Four New Books Valuable To Economists

CANALS AND AMERICAN ECONOMIC DEVELOPMENT

By Carter Goodrich, H. Jerome Cranmer, Julius Rubin, and Harvey H. Segal. Edited by Carter Goodrich.

This book by a team of economic historians examines every aspect of the planning of American economic development in relation to canals. Part One is concerned with the political decisions to build canals; Part Two analyzes the economic impact of canals and points out the importance of public financing in canal building. The subjects discussed in this book are of particular interest to specialists studying the economy of the developing nations of today.

\$7.50

ROOSEVELT'S FARMER: Claude R. Wickard in the New Deal

By Dean Albertson

From 1933 to 1945 Wickard served in the Department of Agriculture, and was Secretary throughout the Second World War. Drawing heavily on his diary and personal papers, and on interviews with such figures as Henry Wallace, Howard Tolley, Frances Perkins and M. L. Wilson, the author develops an intimate study of the man and the workings of the agency in a crucial period. "... Unusual candor and realism which does credit to both the author and the subject." New York Herald Tribune

\$6.00

BARGAINING IN GRIEVANCE SETTLEMENT

By James W. Kuhn

A major appraisal of the day-to-day practice of handling disputes over work pace, seniority, piece rates, etc. Professor Kuhn explores the successes and failures of this judicially sanctioned method which could be the solution for the labor-management 'cold war.' For labor economists this book is required reading.

\$4.50

BANK HOLDING COMPANIES

By Gerald C. Fischer

This up-to-date survey of group banking in the United States offers both a picture of current practices and a historical account of the evolution of multiple-unit banking. Special attention is given to the study of Federal laws and the reasons behind the merger of 120 independent banks with leading group systems since 1949.

\$5.50

COLUMBIA UNIVERSITY PRESS

2960 Broadway

New York 27, New York

EUROPE EMERGES

Transition Toward an Industrial World-Wide Society, 600-1750

by Robert L. Reynolds

The main theme of this new approach to world history is the emergence of Europe as an economic and social force which has expanded and continues to expand to every corner of the globe. Its emphasis on business—banking, bookkeeping, insurance, government finance, and mercantile practices—makes the medieval world look less like the picture seen by Sir Walter Scott and more like that seen by the *Wall Street Journal*. 1961. 544 pp., 31 maps. \$7.50

THE ST. LAWRENCE WATERWAY

A Study in Politics and Diplomacy

by William R. Willoughby

A report on the political, economic, and diplomatic considerations that have played a decisive role in the navigational improvement of the Great Lakes-St. Lawrence River system. Thoroughly documented and based on much unpublished information. 1961. 396 pp., 12 figs. 1 map. \$6.00

WATER PURITY

A Study in Legal Control of Natural Resources

by Earl Finbar Murphy

"A most illuminating legal-historical background to the problems of water pollution. [The] book is good reading apart from its significance to our economy." *Library Journal* 1961. 224 pp. \$4.75



THE UNIVERSITY OF WISCONSIN PRESS

430 Sterling Court • Madison 6, Wisconsin

Allyn and Bacon College Division Presents

EIGHT NEW TEXTS IN ECONOMICS

ECONOMICS: Principles, Problems and Perspective 1962

By Howard S. Dye, John R. Moore, and J. Fred Holly,
all of University of Tennessee.

AMERICAN ECONOMIC DEVELOPMENT: Growth of the United States in the Western World, 1962

By Lester S. Levy, Texas Technological College, and
Roy J. Sampson, University of Oregon

MONEY and BANKING

By C. Lowell Harriss, Columbia University

CHALLENGE TO THE AMERICAN ECONOMY: An Introduction to Economics

By Rendigs Fels, Vanderbilt University

FUNDAMENTAL STATISTICS FOR BUSINESS AND ECONOMICS, 2nd Edition

By John Neter, University of Minnesota; and
William Wasserman, Syracuse University

THE AMERICAN FINANCIAL SYSTEM: MARKETS AND INSTITUTIONS

By James B. Ludtke, Department of General Business and
Finance, University of Massachusetts

INTRODUCTION TO LINEAR PROGRAMMING

By R. Stansbury Stockton, Indiana University

For further information, write to: Arthur B. Conant

**ALLYN AND BACON COLLEGE DIVISION
150 TREMONT ST., BOSTON, MASS.**



Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers



BOOKS

Forthcoming Wiley titles in Business and Economics . . .

Managerial Economics: Text and Cases

By ERWIN E. NEMMERS, *Northwestern University*. Containing a wealth of case material, this book clearly shows the practical managerial applications of economic theory. The graphic method, decision theory, and econometrics are heavily emphasized. 1962. Approx. 480 pages. Prob. \$10.25.*

Statistical Controls in Business

By FREDERICK A. EKEBLAD, *Northwestern University*. A clear introduction to probability concepts and methods and their role in business. The author shows how traditional ideas of confidence intervals and hypothesis-testing are linked with recent developments in decision-theory and Bayesian statistics. 1962. *In press*.

Operations Research in Production and Inventory Control

By FRED HANSSMANN, *The National Cash Register Co.* Offers a comprehensive exposition of all major technical developments in scientific inventory control over the past decade. 1962. Approx. 265 pages. Prob. \$8.95.*

Mathematical Foundations of Administration

By E. W. SANDBERG and F. P. FOWLER, *both of Colorado State University*. A basic introduction to the mathematical concepts and principles underlying modern administrative theory and practice. 1962. *In press*.

Introduction to Science in Management

By DANIEL TEICHROEW, *Stanford University*. Describes basic scientific methods (OR, game theory, linear programming, etc.) and discusses both their present and potential application to business problems. 1962. *In press*.

Casebook in Production Management

By RAYMOND J. ZIEGLER, *University of Illinois*. Stressing analysis rather than mere technique, this book contains case materials covering more than 20 industries. Both quantitative and qualitative analyses are required. 1962. *In press*.

**Also available in a textbook edition for college adoption.*

Reserve your examination copies now.

JOHN WILEY & SONS, Inc.

440 Park Avenue South, New York 16, N. Y.



BOOKS

Recent Wiley titles in Business and Economics . . .

Economics and American Industry

By LEONARD W. WEISS, *San Jose State College*. 1961. 548 pages \$7.50.

Introductory Economics

By NORMAN F. KEISER, *San Jose State College*. 1961. 560 pages. \$6.50.

Injury and Recovery in the Course of Employment

By EARL F. CHEIT, *University of California, Berkeley*. 1961. Approx. 384 pages. Prob. \$12.00.

Wholesaling in Marketing Organization

By DAVID REVZAN, *University of California, Berkeley*. 1961. 656 pages. \$10.50.*

Investments — Third Edition

By GEORGE W. DOWRIE, *Stanford University*; DOUGLAS R. FULLER, *The Northern Trust Co.*; and FRANCIS J. CALKINS, *Marquette University*. 1961. 561 pages. \$9.00.*

Executive Control — The Catalyst

By WILLIAM TRAVERS JEROME III, *Syracuse University*. 1961. 275 pages. \$6.95.*

*Also available in a textbook edition for college adoption.

Organized Executive Action Decision-Making, Communication and Leadership

By HENRY H. ALBERS, *University of Iowa*. 1961. 604 pages. \$8.50.*

Management Models and Industrial Applications of Linear Programming

Volumes I & II

By ABRAHAM CHARNES, *Northwestern University*; and WILLIAM W. COOPER, *Carnegie Institute of Technology*. VOLUME I: 1961. 467 pages. \$11.75.* VOLUME II: 1961. Approx. 448 pages. Prob. \$11.75.*

Methods of Regional Analysis An Introduction to Regional Science

By WALTER ISARD, *University of Pennsylvania*; in association with David F. Bramhall, Gerald A. P. Carrothers, John H. Cumberland, Leon N. Moses, Daniel O. Price, and Eugene W. Schooler. An M.I.T. Press Book. 1960. 784 pages. \$9.50.

Equitable Payment

By ELLIOT JAQUES. 1961. 336 pages. \$6.00.

An Essay on Trade and Transformation

By STAFFAN BURENSTAM LINDER. 1961. In press.

Send for examination copies.

JOHN WILEY & SONS, Inc.

440 Park Avenue South, New York 16, N. Y.

*The College Department
Of Rand McNally Announces*

**MONEY, BANKING,
AND PUBLIC POLICY**

by **HAROLD BARGER** • *Columbia University*

Carefully organized and well-written, this text treats fully all topics necessary for a firm foundation in understanding contemporary banking. The author's fresh approach includes such timely and important additions as discussion of banking in other countries and the monetary aspects of the business cycle. His classroom experience offers the student a more balanced, integrated and thought-provoking treatment of theory, description, and policy than any previous text.

FOUR OUTSTANDING FEATURES OF THIS NEW TEXT ARE:

1. A lucid description of bank and nonbank financial institutions, of the way they operate, and of policy problems connected with their regulation.
2. A compact, yet up-to-date and well-balanced account of monetary and fiscal theory. This account proceeds step by step with ample arithmetical and graphical illustrations, free from frills, and gives the student the basic understanding he needs for the discussion of policy problems.
3. A systematic discussion of the major policy issues of our time in a relevant historical setting. The potentialities of monetary and fiscal policy are appraised in relation to growth, unemployment, inflation and the gold problem.
4. A comprehensive treatment of contemporary banking with less emphasis on the extraneous details of banking history which plague the ordinary text.

Publication: December, 1961 • 6 x 9 inches • c. 750 pages • c. \$7.00



for approval copies write:
College Department

RAND MCNALLY & COMPANY
P.O. Box 7600, Chicago 80, Illinois

PROFESSIONAL APPOINTMENTS

ECONOMICS of DEFENSE

The new Economics Division of the Operations Evaluation Group will appoint a limited number of imaginative economists holding advanced degrees to the staff during 1962.

They will explore new developments in applied military economics . . . often projects of their own selection . . . and within a favorable research environment. Also, individual publication in technical journals will be encouraged.

Representative problems of the division could include:

- *What is the most economical mix of weapons and delivery forces for stipulated capabilities?*
- *What criteria should determine whether the airlifting of spare parts is needed to support combat equipment?*
- *How can resources of given value contribute most to increasing fleet endurance?*

The Operations Evaluation Group . . . oldest (1942) continuing military operations research organization in this country . . . is civilian scientific advisor to the Chief of Naval Operations. OEG is a part of the Division of Sponsored Research of the Massachusetts Institute of Technology. **OEG**

OPERATIONS EVALUATION GROUP
Concourse, Arlington Towers, Arlington 9, Virginia
employment by ability without discrimination



What motivates a Golden Age— or a Decline and Fall?

Read the original and compelling answer
presented in this important new book

THE ACHIEVING SOCIETY

by David C. McClelland, *Professor of Psychology in the
Department of Social Relations, Harvard University*

"THIS BOOK WILL BECOME A CLASSIC"

From a prepublication review

What motivates an achieving society? In a stimulating, imaginative analysis Professor McClelland applies the methods of the behavioral sciences to this traditional problem in economics and history. In particular, he shows how one human motive, the need for Achievement, recurs regularly in the imaginative thinking of men and nations before periods of rapid economic growth. He draws evidence from history and from some 40 contemporary nations.

From the review in *Challenge: The Magazine of Economic Affairs*, November 1961:
"Though the book is vast in scope and deals with a great many technical problems, it is unfailingly interesting and well written . . . it represents a stimulating and original contribution to the study of economic growth."

September, 1961 312 pages \$7.95

D. VAN NOSTRAND COMPANY, INC.

120 Alexander Street

Princeton, New Jersey

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

YALE PAPERBOUNDS

Robert Triffin

GOLD AND THE DOLLAR CRISIS

A New Edition

The now famous "Triffin plan" is being vigorously debated by the Administration, by Congress, by economists, and in the daily press here and abroad. In hearings before the Joint Economic Committee of Congress, Senator Jacob K. Javits hailed it as "Absolutely the way to do it. . . . You have put your finger on the dilemma of the Western World, how to keep from tying its own hands behind its back." The first edition, published in May 1960, accurately forecast the crisis we are witnessing today. This new, up-to-date edition explains the later break in the London gold market and appraises the reactions of both the Eisenhower and the Kennedy administrations to the developing crisis and the programs adopted, or contemplated, to deal with it. The problem outlined in *Gold and the Dollar Crisis* received first billing in President Kennedy's Message on Gold and the Balance of Payments. Its study has been urgently entrusted to the Secretary of the Treasury by the President and is now being explored by the International Monetary Fund and in the capitals of all major foreign countries.

A Yale Paperbound \$1.45
Available in cloth, \$5.00

Albert O. Hirschman

THE STRATEGY OF ECONOMIC DEVELOPMENT

Stemming from the author's intensive experience as a financial adviser and economic consultant in Latin America, this timely book presents an international view of the economic growth of underdeveloped countries. Starting with the decision-making process, Mr. Hirschman shows that economic advance in these countries is held back not so much by the "vicious circle of poverty" as by difficulties in mobilizing latent resources. Mechanisms which are helpful in overcoming these difficulties are surveyed, and a positive role in development is assigned to *unbalanced* growth and to the pressures which result from it. *Extremely interesting . . . Professor Hirschman's obvious experience with practical problems . . . provides an insight which is extremely rare in this cliché-ridden branch of economics. This is indeed a very important contribution to the theory of economic development.*"—The Economic Journal.

A Yale Paperbound \$1.45
Available in cloth, \$5.00

Yale University Press



New Haven and London

Canadian orders:

McGill University Press, Montreal 2

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

CARTEL AND COMBINE

Essays on Monopoly Problems

by PHILIP C. NEWMAN, Ph.D.

Formerly, Professor of Economics, Pennsylvania State University; Senior Foreign Affairs Economist, U. S. Department of State

Foreword by SIGMUND TIMBERG, former Chief, Consent Decree Section, Anti-Trust Division, Department of Justice

CONTENTS

1. The Economic Structure of the Peace
2. The Role of Economic and Marketing Data in AntiTrust Administration
3. Foreign Commerce and the AntiTrust Laws.
4. Pooling and Combinations in International Aviation.
5. Key German Cartels Under the Nazi Regime.
6. Authoritarianism and Market Controls.
7. The Predecessors of the European Iron and Coal Community.
8. Banking Concentration and Small Business.
9. The Unilever Combine.
10. High Alloy Castings—The Anatomy of a Price.
11. Labor "Monopoly"—A False Issue.

393 pages \$7.50

Unique charts and graphs of the corporate structure of famous international combines.

Indispensable for professors, trade association and corporate executives, lawyers and industrial economists.

Write for your examination copy today.

Look for it at the AEA Convention.

College Department

PILOT BOOKS

42 W. 33d Street

New York, N.Y.

DECISION ORDER & TIME IN HUMAN AFFAIRS

by G. L. S. Shackle

Brunner Professor of Economic Science in the University of Liverpool

The economist is required to make many far-reaching decisions: to create, in an important sense, much of the future of the modern world.

For this reason, Professor Shackle's analysis of the concept of decision—and its related notions of expectation, uncertainty, and time—has stirred wide discussion. *Expectation in Economics* and *Uncertainty in Economics* introduced his ideas. Now *Decision, Order & Time* returns to them to probe more deeply into their theory and application. What is decision? Professor Shackle wants to know. Conforming to the logical disciplines, he reviews the notions of probability, uncertainty and expectation to determine what part they assume in governing our choices. On the basis of his findings he provides graphs and equations and, finally, a new theoretical model for decision-making.

The applications which close this book prove the importance of Shackle's theories to the science of Economics. And the book as a whole proves that this science has much to offer to psychologists, philosophers, sociologists—to all who seek an understanding of the nature of human affairs. \$6.50

CAMBRIDGE UNIVERSITY PRESS, 32 East 57th Street, New York 22, N.Y.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

ECONOMICA

Published Quarterly

Vol. XXVIII

November 1961

No. 112

CONTENTS

Understanding International Trade	<i>Ely Devons</i>
A Simple Model of Employment, Money and Prices in a Growing Economy	<i>A. W. Phillips</i>
A Method of Consumer Demand Analysis Illustrated	<i>J. F. Pearce</i>
Monetary Management in Dependent Economies	<i>J. O. W. Olakanpo</i>
A Further Diagrammatic Illustration of Properties of the Keynesian Income Equilibrium	<i>L. R. Webb</i>
A Note on Compensation Tests	<i>George Slasor</i>
The Russian Loan of 1855: A Postscript	<i>Frank W. Fetter</i>
Comment	<i>Olive Anderson</i>
Interest Rates and Asset Prices	<i>Brian Tew</i>

MEMBERS OF THE AMERICAN ECONOMIC ASSOCIATION may subscribe at the specially reduced rate of 25s. (\$3.71) per annum. Subscriptions should be sent to the Secretary and Treasurer, American Economic Association, Evanston, Illinois, accompanied by a cheque drawn in favour of ECONOMICA, London School of Economics and Political Science.

INTERNATIONAL STUDIES

*Quarterly Journal of the Indian School of International Studies,
New Delhi*

International Studies contains articles in the fields of modern International Politics, Economics, and Law as well as on political, economic and social developments in Asia and other areas.

Vol. III

No. 2 (October 1961)

CONTENTS

West New Guinea: An Australian View	<i>Norman Harper</i>
The New Rouble and the Underdeveloped Countries	<i>J. D. Sethi</i>
Presidential System in the Republic of Viet-Nam	<i>K. R. Bombwall</i>
Alignment and Non-Alignment in Pakistan's Foreign Policy	<i>B. G. Rastogi</i>

Notes and Memoranda : Survey of Source Material : Bibliography

Annual Subscription: Rs.22: s.40: \$6.00

Single Copy: Rs. 6: s.11: \$1.80

Copies may be obtained from the publishers, Asia Publishing House, at the following addresses:

ASIA PUBLISHING HOUSE

447 Strand
London W.C.2

Nicol Road
Bombay 1

119 West 57th Street
New York 1, N.Y.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

JOURNAL OF BUSINESS

Graduate School of Business, University of Chicago, Chicago 37, Illinois

Volume XXXIV

October, 1961

Number 4

Index to Volume XXXIV

Dividend Policy, Growth, and the Valuation of Shares	Merton H. Miller and Franco Modigliani
The Future of Industrial Research	Yale Brozen
Capital Budgeting and the "Best" Tax Depreciation Method	Sidney Davidson and David Drake
Recent Labor Disputes over "Restrictive" Practices and "Inflationary" Wage Increases	Irwin L. Herrnstadt and Benson Soffer
The Bayesian Approach to Statistical Decision: An Exposition	Jack Hirsbleifer
Indexes of Retail Prices of New Cars—Consumer Price Index	Allen P. Jung
A Note on Provisional Estimates of the Gross National Product and Its Major Components	Peter E. de Janosi
Book Reviews	Books Received
Notes: University Schools of Business	

The *Journal of Business* is published quarterly by the University of Chicago Press. Subscriptions are \$6.00 per year and should be addressed to the *Journal of Business*, Graduate School of Business, University of Chicago. Manuscripts in duplicate, typed and double-spaced (including footnotes and quotations), and editorial correspondence should be addressed to Irving Schweiger, Editor, *Journal of Business*, at the same address.

LAND ECONOMICS

a quarterly journal of

PLANNING, HOUSING & PUBLIC UTILITIES

Among Articles Appearing in November 1961 issue:

The Scope and Content of Resource Policy in Relation to Economic Development	Morris Miller
Metropolitan Growth and Future Political Problems	Anthony Downs
The New York Metropolitan Region: Social Forces and the Flight to Suburbia	Rosalind Tongh and Gordon D. Mac Donald
Land and Income Distribution in Peasant Countries	Charles T. Stewart, Jr.
Use of Airphoto Interpretation in Agricultural Land Economics Research	Kenneth C. Nobe
The Distances-Traveled Technique for Measuring Value of Recreational Areas: An Application	Donald F. Wood
Governments and Housing: Accessibility of Minority Groups to Living Space	A. E. Warner and Milton S. Goldberg

Annual Subscription \$6.00

Single Copy \$2.00

Sterling Hall, University of Wisconsin

Madison 6, Wisconsin

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

SOCIAL RESEARCH

An international quarterly, founded in 1934, published by the
GRADUATE FACULTY OF POLITICAL AND SOCIAL SCIENCE
of the New School for Social Research, New York

Contents for Autumn 1961 (Volume 28, Number 3)

- The Proclaimed Emergence of Communism in the USSR . . . *Alexander S. Balinsky*
Coordinated Energy Policy in the Common Market: The Guidance-Price
Plan . . . *Leslie E. Grayson*
Modernity and Tradition in Britain . . . *Stanley Rothman*
Current Inflation Theory: Considerations on Methodology . . . *George Macesich*
On the Use of Metaphor in Political Analysis . . . *Martin Landau*
Forum—Economic Imperialism Again . . . *Sayre P. Schatz*
Rejoinder . . . *Martin Landau*
Review Note—On Metropolitan Growth: A Review of Recent Literature
. . . *Oscar Ornati*

Book Reviews

Published in Spring, Summer, Autumn, and Winter

Subscription \$7.50 a year, foreign \$8.00—Single copies \$2.00

66 WEST 12th STREET, NEW YORK 11, N.Y.

AMERICAN SOCIOLOGICAL REVIEW

August 1961

- Herbert Spencer's Three Sociologies . . . *Werner Stark*
Orderly Careers and Social Participation . . . *Harold L. Wilensky*
Organization Man and Due Process of Law . . . *William M. Evan*
Formal Organization in a Pre-industrial Society . . . *Robert M. Marsh*
The Changing Protestant Ethic: Rural Patterns . . .
. . . *Bernice Goldstein and Robert L. Eichhorn*
Experimental Test of a Theory of Coalition Formation . . . *William A. Gamson*
Family Structure and Achievement Motivation . . . *Bernard C. Rosen*
Social Stratification in a South Italian Town . . . *Joseph Lopreato*
Physicians in Prepaid Group Practice . . . *Dennis C. McElrath*
Socio-Economic Factors in Religious Differentials in Fertility . . .
. . . *Ronald Freedman, Pascal K. Whelpton, and John W. Smith*

Book Reviews and Notes

\$2.00 per issue

\$8.00 per year

Official Journal of
AMERICAN SOCIOLOGICAL ASSOCIATION
New York University
Washington Square, New York 3, N.Y.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE SOUTH AFRICAN JOURNAL OF ECONOMICS

Editors:
W. J. BUSSCHAU C. S. RICHARDS H. M. ROBERTSON
(Managing Editor)

VOLUME 29, NO. 2 JUNE 1961

I. ARTICLES:

- The Introduction of a Decimal Coinage System in the Union of South Africa Dr. E. H. D. Arnds
The Finance of Urban Local Government in Uganda T. A. Kennedy
The Formal Analysis of Joint Supply R. T. McKinnell
Dr. W. J. Busschau on Gold and World Liquidity: A Review Article ... L. H. Samuels
Professor R. Triffin on *Gold and the Dollar Crisis*: A Review Article ... P. F. D. Wallis

II. REVIEWS:

III. NOTES AND MEMORANDA:

- The Free Port of Copenhagen R. W. K. Parsons
The Department of Labour's Memorandum on Work Reservation Mary V. Piercy

IV. RECENT PUBLICATIONS:

Editorial communications, contributions (in duplicate), and books for review should be addressed to the Joint Editors, P.O. Box 5316, Johannesburg.

Business communications should be addressed to the Secretary at P.O. Box 5316, Johannesburg.

INTERNATIONAL ECONOMIC REVIEW

Published by the Kansai Economic Federation with the Collaboration of the Wharton School of Finance and Commerce, University of Pennsylvania, and the Institute of Social and Economic Research, Osaka University

Chief Editor: L. R. Klein (University of Pennsylvania)

Co-Editor: M. Morishima (Osaka University)

Volume II

September 1961

Number 3

CONTENTS

- The Effect of Price Changes on the Demand and Supply of Separable Goods Masazo Sono
A Historical Note on Professor Sono's Theory of Separability Michio Morishima
The Structure of Multi-Sector Dynamic Models Dale W. Jorgenson
The Structure of Multiplier-Accelerator Models of the United States Economy, 1909-1951 R. J. Ball and Eugene Smolensky
Income Elasticity of Public Education Werner Z. Hirsch
A Test of the Constancy of Input-Output Coefficients among Countries Tsunehiko Watanabe
Note on Convenient Matrix Notations in Multivariate Statistical Analysis and in the Theory of Linear Aggregation T. Klose
Durability of Capital and Rate of Growth of National Product Leif Johansen
The Elasticity of Demand for Imports with Close but Imperfect Substitutes W. M. Gorman

The Review is published fully in English, three times a year. The annual subscription price is \$4.00 per year outside Japan and 1,200 Yen per year in Japan; the price of a single copy is \$1.50 outside Japan, 500 Yen in Japan. Subscriptions outside of Japan should be forwarded to *The International Economic Review*, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia 4, Pa. Subscriptions in Japan should be forwarded to *The International Economic Review*, Kansai Economic Federation, Osaka Building, Soze-cho, Kita-Ku, Osaka, Japan.

Manuscripts for publication should be sent to the chief editor or co-editor of the Review.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

INTERNATIONAL LABOUR REVIEW

Monthly. Articles on economic and social topics. Current Information. Bibliography. A statistical supplement gives information on employment, unemployment, wages, consumer prices, etc. Among recent articles have been the following:

Immigration of Foreign Workers into the Federal Republic of Germany, by Heinrich M. Dreyer

Observations on the Financing of Social Security in the Common Market Countries, by Jacques Jean Ribas

Economic Growth and Social Policy in Latin America: the Seventh Conference of American States Members of the I.L.O.

The United States Labor-Management Reporting and Disclosure Act, 1959: Its Background and Early Operation, by Morris Weiss

Recent Trends in Labour Legislation for Hired Agricultural Workers in Latin America

Bibliography Statistics: October 1960 Inquiry

A specimen copy of the *Review* and a catalogue of International Labour Office publications will be forwarded on application to the International Labour Office, Geneva, or to the I.L.O. Branch Office: 917 15th Street, N.W., Washington 5, D.C.

Annual subscription: \$7.50

Single copies: \$0.75

(Published in English, French and Spanish editions)

EL TRIMESTRE ECONOMICO

Director: Oscar Soberón Martínez. — **Comité Editorial:** Jorge Ahumada (Santiago de Chile), Emilio Alanís Patiño, Edmundo Flores, Celso Furtado (Brasil), Emigdio Martínez Adame, Raúl Ortiz Mena, Felipe Pazos, Raúl Prebisch (Santiago de Chile), Raúl Salinas Lozano.

Vol. XXVIII (4) México, Octubre-Diciembre de 1961

Núm. 112

SUMARIO

Artículos:

Leopoldo Solís M., *Controles selectivos del crédito: Un nuevo enfoque.*

R. Fernandez Y Fernandez, *Reforma Agraria en Ecuador.*

R. Kempff-Mercado, *Algunas consideraciones sobre el desarrollo económico de Venezuela.*

Rodrigo Nuñez, *El crecimiento económico y el uso de recursos en Panamá.*

Giuseppe Barbero, *Realizaciones y problemas de la reforma agraria en Bolivia.*

Paul A. Baran, *El compromiso del intelectual.*

M. Dobb, *Algunos problemas de la Teoría del crecimiento y de la política de planeación.*

R. Prebisch, *La respuesta de América Latina a una nueva política de cooperación económica internacional.*

Gonzalo Martner, *La técnica de la programación presupuestaria.*

Documentos:

Carta de Punta del Este.

Ley de Reforma Urbana de Cuba.

Discurso pronunciado por el señor licenciado Raúl Salinas Lozano el día 23 de julio de 1961, en la Conferencia Internacional de Industrias, celebrada en Chicago, E.U.A.

NOTAS BIBLIOGRAFICAS, REVISTAS DE REVISTAS, PUBLICACIONES RECIBIDAS

El Trimestre Económico aparece en los meses de enero, abril, julio y octubre de cada año. La suscripción anual cuesta: en México, \$40.00; en el extranjero Dls. 4.50. Número suelto; en México, \$12.50; en el extranjero Dls. 1.30. Lo edita:

FONDO DE CULTURA ECONOMICA

Subscripciones, anuncios, quejas, etc. Tel. 24-22-04, Srta. Ma. de la Luz Vázquez Av. de la Universidad, 975, México, 12, D.F.—Córdoba 2064, Buenos Aires.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

CANADIAN JOURNAL OF ECONOMICS AND POLITICAL SCIENCE

Volume XXVII, Number 4

November, 1961

Social Studies	C. A. Ashley
The West Indies: Improbable Federation?	Elisabeth Wallace
Economic History and Economic Underdevelopment	Barry E. Supple
Social Theory and the Mass Media	Thelma McCormack
Market Concepts in Political Theory	C. B. Macpherson
Canadian Anti-Combines Administration, 1952-1960	G. Rosenbluth and H. G. Thorburn
Flexible Exchange Rates and Employment Policy	Robert Mundell

NOTES

The Lieutenant-Governor's Discretionary Powers: The Reservation of Bill 56	J. R. Mallory
Trade Gains in the Short Run: A Reply to Mr. Kemp	Stephen Enke
Monograph Studies Based on the 1961 Census	W. E. Duffett

Review Article

Water Resource Development	Clarence L. Barber
----------------------------------	--------------------

Reviews of Books

\$6.00 per year. \$1.50 per single issue

UNIVERSITY OF TORONTO PRESS
Front Campus, University of Toronto, Toronto 5, Canada

AGRICULTURAL HISTORY

Designed as a medium for the publication of research and documents pertaining to the history of agriculture in all its phases and as a clearing house for information of interest and value to workers in the field. Materials on the history of agriculture in all countries are included and also materials on institutions, organizations, and sciences which have been factors in agricultural development.

ISSUED QUARTERLY SINCE 1927

BY

THE AGRICULTURAL HISTORY SOCIETY

Subscriptions, including membership: Annual, \$5.00; student, \$2.00; contributing, \$10.00.

Editor: Fred W. Kohlmeyer, 3 Commerce Annex, University of Illinois, Urbana, Illinois.

Secretary-Treasurer: Wayne D. Rasmussen, Room 3446, South Agriculture Building, U. S. Economic Research Service, Washington, D.C.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE ECONOMIC JOURNAL

The Quarterly Journal of the Royal Economic Society

No. 284

December 1961

Vol. LXXI

I. Articles

- The Variorum Edition of Alfred Marshall's *Principles of Economics* C. W. Gillebaud
 The Reorganisation of the International Monetary System: An alternative proposal ... J. W. Angell
 On the Measurement of Technological Change E. D. Domar
 Long-run Implications of Alternative Fiscal Policies and the Burden of the National Debt
 F. Modigliani
 The Optimal Growth Path for an Underdeveloped Economy R. M. Goodwin
 A Method for Separating the Effects of Capital Accumulation and Shifts in Production Functions upon Growth in Labour Productivity L. Johansen

II. Reviews

III. Notes and Memoranda

IV. Recent Periodicals and New Books

MACMILLAN & Co. Ltd., LONDON, W.C.2.

Application for Fellowship to

ROYAL ECONOMIC SOCIETY, 21 Bentinck Street, London, W.1.

Annual Subscription £2.10.0 (or \$7.60)

Life Composition £34.10.0

JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION

1757 K St., N.W. Washington 6, D.C.

Volume 56

December 1961

Number 296

TABLE OF CONTENTS

- Rectifying Inspection of Lots F. J. Anscombe
 On Comparing Intensities of Association Between Two Binary Characteristics in Two Different Populations Agnes Berger
 Occupational Components of Educational Differences in Income Otis Dudley Duncan
 Failure of Enumerators To Make Entries of Zero: Errors in Recording Childless Cases in Population Censuses M. A. El-Badry
 Note on the Missing Plot Procedure in a Randomized Block Design Leroy Folks and Del Lon West
 A Bivariate Extension of the Exponential Distribution John E. Freund
 Stepwise Least Squares: Residual Analysis and Specification Error Arthur S. Goldberger
 Statistical Methods for the Mover-Stayer Model Leo A. Goodman
 Gamma Distribution in Acceptance Sampling Based on Life Tests Shanti S. Gupta and Phyllis A. Groll
 On the Resolution of Statistical Hypotheses Robert F. Hogg
 A Simple Theoretical Approach To Cumulative Sum Control Charts Norman L. Johnson
 A Nomograph for Computing Partial Correlation Coefficients Ruth W. Lees and Frederic M. Lord
 Non-Additivity in Two-Way Analysis of Variance John Mandel
 The Statistical Analysis of Industry Structure: An Application to Food Industries Les E. Preston and Earl J. Bell
 The Asymptotic Variances of Method of Moments Estimates of the Parameters of the Truncated Binomial and Negative Binomial Distributions S. M. Shah
 Forecasting Industrial Production H. O. Stekler
 Residence Histories and Exposure Residences for the United States Population Karl E. Taeuber, William M. Haenszel and Monroe G. Sirken
 Testing the Independence of Regression Disturbances Henri Theil and A. L. Nagar
- For further information, please contact: American Statistical Association, 1757 K Street, N.W., Washington 6, D.C.

ASA

THE AMERICAN STATISTICAL ASSOCIATION

INVITES AS MEMBERS ALL PERSONS INTERESTED IN:

1. Development of new theory and method
2. Improvement of basic statistical data
3. Application of statistical methods to practical problems

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

METROECONOMICA

International Review of Economics

Vol. XIV

No. 1

- Extended Edgeworth bargaining games *M. Shubick*
The output ceiling *Tb. Dernburg*
Is investment really unimportant? (Part one) *B. F. Massel*
Some comments to the *Handwörterbuch der Sozialwissenschaften* *E. Fossati*

Board of Editors: C. Bresciani Turrone, E. Fossati (*Managing Editor*), R. Frisch, W. Leontief, G. Lufalla, A. Mahr, J. Marschak, G. U. Papi, R. W. Pfouts, R. Roy, E. Schneider, G. L. S. Shackle, R. Stone, J. Tinbergen, G. Tintner, F. Zeuthen.

Published every four months. Subscription rate \$7 per year (two years \$12). Communications to the editor to be addressed to *Professor Eraldo Fossati*, director of the *Laboratorio di economia Vilfredo Pareto, Università, via Balbi 3, Genova (Italy)*. Communications regarding subscriptions should be sent to *Licinio Cappelli, Corso Italia 12, Trieste* or *G. E. Stechert-Hafner, Inc., 31 East Tenth Street, New York 3, N.Y., U.S.A.*

THE INDIAN ECONOMIC JOURNAL

Vol. IX

October 1961

No. 2

Articles

- A Diagrammatic Representation of the Policy of Accounting Prices .. *A. Qayum*
Lessons for Under-developed countries from the Japanese Experience of Economic Development *Hugh T. Patrick*
Marginal Utility, Interpersonal Comparisons and the Theory of Taxation *David Carney*
A Theory of Optimum Tariff Policy *V. R. Panchamukhi*
Working of the Sterling Area Gold and Dollar Pool 1948-1958—An Essay in Regional Multilateral Payments System *Ajit Bhagat*

II. Reviews

III. Notes

All Communications should be sent to

**The Editor, The Indian Economic Journal,
Department of Economics, University of Bombay
Bombay 1.**

Per copy: Ra. 5 or 7/6 d
or \$1.25 post free

Per annum: Ra. 15
or £1-5 or \$4.00 post free

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

REVUE DE SCIENCE FINANCIÈRE

The French Review of Public Finance

No. 4—Octobre-Décembre 1961

SOMMAIRE

- Aspects de la fiscalité dans la C.E.E. par COSCIANI, Professeur à l'Université de RÔME.
- Les Problèmes de double imposition entre la France et la République de Côte d'Ivoire, par
TIXIER (G.) Professeur à la Faculté de Droit et de Sciences Economiques de
POTTIERS, Directeur de l'Ecole de Droit d'ABIDJAN.
- L'Economie américaine en 1960: Prospérité et déception, par HARRIS (L.A.); Professeur
à l'Université de COLOMBIE.
- La pression fiscale dans les pays capitalistes et dans les pays socialistes par M. WERALSKI,
Université de VARSOVIE.
- Les Finances dans les Etats socialistes par L. KUROWSKI (L.), Professeur à la Faculté
de Droit de VARSOVIE.
- Chronique des finances étrangères par LECAILLON.
- Chronique de Jurisprudence fiscale par M. CHRESTIEN.
- Documents budgétaires par M. BASSO.
- Notes et mémoires: Septième Rapport de la Commission de vérification des comptes des
entreprises publiques.
- Revue trimestrielle—Abonnement annuel: France: 85 NF français. Etranger: 45 NF
français—Librairie Générale de Droit et de Jurisprudence 20, rue Soufflot PARIS 5e.

POPULATION REVIEW

A JOURNAL OF ASIAN DEMOGRAPHY

July 1961

Vol. 5 No. 2

CONTENTS

- Malthusian Theory: A Commentary and Critique *Professor William Petersen*
- Hunger—the Great Discovery of the Twentieth Century *Dr. Josue de Castro*
- Some Reactions to Bonuses for Family Limitation *Professor Stephen Enke*
- Felt Population Pressures in India: Methods of Identification
..... *Professor George A. Hülery Jr.*
- Asian Migration and the Role of the Churches *Professor S. Chandrasekhar*
- Population Growth and Economic Development in India: 1951-61
..... *Professor S. Chandrasekhar*

Press Cuttings
Institute's Activities
Reviews of Books
Publications Received

Subscription: Rs 10; £1. \$4.00

INDIAN INSTITUTE FOR POPULATION STUDIES

Gandhinagar, Madras, 20 (India)

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE ECONOMIC RECORD

The Journal of the Economic Society of Australia and New Zealand
Published Three Times a Year

Vol. XXXVII

September 1961

No. 79

A. R. HALL: The Australian Economy, August, 1961

Articles.

SIR JOHN CRAWFORD: The Significance of Recent Developments in Asia for the Economic Future of Australia

R. F. HENDERSON: Monetary Policy in Australia 1960-61

E. G. JACOBY: Some Demographic Observations on First Order Births in the Light of the Cohort Approach

GIARRO BERNARDELLI: The Origins of Modern Economic Theory

N. F. LAING: Factor Price Equalisation in International Trade and Returns to Scale

F. H. GRUEN: Crying Over Spilt Milk

K. H. BURLEY: The Organisation of the Overseas Trade in New South Wales Coal, 1860 to 1914

Notes.

Z. M. Zubinaki: The "Built-in-Stability" of the Australian System of Taxation, 1943-1959

B. J. GORDON: Three Hire Purchase Surveys

News and Notes.

Reviews.

Published four times a year.

Annual Subscription £2. 2. 0

Single Copies 14/-

MELBOURNE UNIVERSITY PRESS

Registered in Australia for transmission by post as a periodical.

ECONOMIA INTERNAZIONALE

Quarterly Review

Vol. XIV, No. 4

CONTENTS

November 1961

On Inflation and Economic DevelopmentS. Ghosh

I criteri di investimento nei paesi sottosviluppati: in margine ad una recente polemicaA. Graziani

The Theory of Interest in Centrally Planned EconomiesE. Neuberger

Über Probleme der Nachfrageelastizitäten mit besonderer Berücksichtigung der Volkswirtschaftsplanung in sozialistischen LändernS. Varga

La théorie de l'oligopole de BaumolA. Heertje

Il paradosso di Leontief. Le ragioni di convenienza che informano la composizione del commercio estero statunitenseM. Tonioli

Pakistan: A Case of an 'Export-Lagging' EconomyI. D. Pal

Bollettino Bibliografico ed Emerografico: Books Review—Titles of articles on recent periodicals—Summary of articles issued on recent periodicals.

Annual subscription to "Economia Internazionale" It. Liras 5.000. Applications for subscription and correspondence should be addressed to the Direzione Istituto di Economia Internazionale, via Garibaldi 4, Genova (Italy).

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

BULLETIN FOR INTERNATIONAL FISCAL DOCUMENTATION

Bi-monthly periodical published by the International Bureau of Fiscal Documentation,
HERENGRACHT 196—AMSTERDAM, Netherlands

Vol. XV

No. 4

Zur Frage der Auslegung von Steuergesetzen in
Deutschland und in den Niederlanden Prof. Schuttevåer
Surveys of tax legislation.
Luxembourg: Arrêt du Conseil d'Etat.
United Kingdom: Budget Speech 1961.
India: Budget Speech 1961-62.

Reviews on books and articles dealing with taxation matters.

PRICE: { \$5.00 a year without supplements } or equivalent in
 { \$7.25 a year with supplements } other currencies

INDIAN JOURNAL OF ECONOMICS

Editorial Board

KENNETH K. KURIHARA
J. K. MEHTA

GYAN CHAND
A. N. AGARWALA

OM PRAKASH (Managing Editor)

Volume XLI

No. 160

SPECIAL NUMBER ON GROWTH AND NATIONAL INCOME

Dynamic Growth Programming for the "Takeoff Path" Kenneth K. Kurihara
Analysis of Growth Rate and Capital Coefficient Kesar Sangha
Subjective Criteria in Income Distribution of the U.S.A. Richard J. Ward
Income Distribution, Income Taxation and Economic Development in Ghana and
Nigeria David Carney
Towards Full Employment Equilibrium Josef Nowicki
On Growth Model Behind the Third Plan Mahesh Chand
A Model for Programming of Autonomous Investment Fund and Growth of Em-
ployment V. R. Pancharukhi
Schumpeter's Theory of Growth V. S. Mahajan
The Ricardian Theory of Growth Reconsidered P. Subramanyam
International Trade and Economic Growth Vinod Dubey
Foreign Exchange Difficulties and National Output in a Developing Economy
..... Nity Majumdar

The Indian Journal of Economics was founded in 1916 by the late Professor H. Stanley
Jevons. Volume 41 starts with issue No. 160. Subscription per volume (four issues, in-
cluding postage) is Rs17/-, £ 1-6-0 or \$3.80.

This Special Number costs Rs6.50, 10s, or \$1.50 up to Oct. 31, 1962 and Rs8/-,
12s 6d or \$1.80 thereafter. Write to the Managing Editor, Indian Journal of Economics,
University of Allahabad, Allahabad-2 (India).

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE QUARTERLY JOURNAL OF ECONOMICS

Founded 1886

Vol. LXXV

November, 1961

No. 4

The Origin and Early Development of Monopolistic Competition Theory	Edward H. Chamberlin
The Commission on Money and Credit	Arthur Smithies
Estimation of Optimum Size of Plant by the Survivor Technique ..	Thomas R. Saving
Aristotle, Schumpeter, and the Metallist Tradition	Barry J. Gordon
The Apparent Decline in Capital-Output Ratios	Paul H. Anderson
Some Gains from Trade in Producer Goods	Stephen Enke
Symposium: Decisions under Uncertainty	
Risk, Ambiguity, and the Savage Axioms	Daniel Ellsberg
Distortion of Subjective Probabilities as a Reaction to Uncertainty	William Fellner
Comment	Howard Raiffa

Recent Publications

Edited by Arthur Smithies for the
Department of Economics, Harvard University
\$1.75 per copy; \$6.00 a year; 3 years \$17.00
Special Student Rate, \$3.00 a year

Order from THE HARVARD UNIVERSITY PRESS
CAMBRIDGE 38, MASSACHUSETTS

THE JOURNAL OF INDUSTRIAL ECONOMICS

Board of Editors: P. W. S. Andrews (General Editor), Nuffield College, University of Oxford; Professor M. A. Adelman, Massachusetts Institute of Technology; Professor Joel Dean, Columbia University; Professor P. Sargent Florence, University of Birmingham; Professor R. B. Heflebower, Northwestern University; Professor E. S. Mason, Harvard University; Professor T. Wilson, O.B.E., University of Glasgow.

Volume X, No. 1, November, 1961

Louis Camu	Industry and the Common Market
D. J. Reynolds	The Economics of Rural Motorways
A. B. Arões	The Chemical Industry goes Abroad
J. F. Nuttall	Some Principles of the Production Control of Building Work: The Application of Queue Theory and of Simulation Techniques.
N. Cuthbert and W. Black	Restrictive Practices in the Food Trades II
F. Livesey	Advertising Effectiveness—a comment on Professor Maffei's article
	Note by Professor Maffei

This Anglo-American journal is essentially devoted to the economic problems of industry and commerce. Its contributors are business men, economists engaged in industry, and specialist academic industrial economists. The Journal is published three times a year. MSS from the United States should be sent to Professor Adelman at the Massachusetts Institute of Technology; and from other countries to the General Editor, Nuffield College, Oxford. The annual subscription is \$4.20 (30 shillings) post free; single copies \$1.90 (thirteen shillings and sixpence) post free. Remittances should be sent to the publisher by personal cheque.

Published by
BASIL BLACKWELL • OXFORD, ENGLAND

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE JOURNAL OF FINANCE

Published by THE AMERICAN FINANCE ASSOCIATION

Vol. XVI

DECEMBER 1961

No. 4

ARTICLES

- The Postwar Rise in Velocity: A Sectoral Analysis Richard T. Selden
The Implications of the Capital Gains Tax for Investment Decisions Charles O. Holt and John P. Shelton
Commodity Taxation and Equity David G. Davies
Monetary Policy and the Forward Exchange Market John H. Auten

Membership dues, including \$3.00 allocated to subscription in *The Journal of Finance*, are \$5.00 annually. Student subscription is \$2.00 a year. Libraries may subscribe to *The Journal* at \$5.00 annually and single copies may be purchased for \$1.25. Applications for membership in the American Finance Association and subscriptions to *The Journal of Finance* should be addressed to the Acting Secretary-Treasurer, Robert A. Kavesh, Graduate School of Business Administration, New York University, 100 Trinity Place, New York 6, New York.

Communications relating to the contents of *The Journal of Finance* should be addressed to the Editor, Harold G. Fraine, Commerce Building, University of Wisconsin, Madison 6, Wisconsin, or to any of the Associate Editors, John G. Gurley, Department of Economics, Stanford University, Stanford, California, William W. Alberts, Graduate School of Business, University of Chicago, Chicago 37, Illinois, and Clyde W. Phelps, Department of Economics, University of Southern California, Los Angeles 7, California.

THE ECONOMIC WEEKLY

An Indian Journal of Current Economic and Political Affairs

SPECIAL NUMBER

JULY 1961

Selected Contents

SHAPE OF THE THIRD PLAN

Objectives and Targets, Resources and Outlay,
On the Agricultural Front, The Programme for Industries

ASPECTS OF THE PLAN

- Growth of the Indian Economy during the Third Plan Uma Datta
The Draft Third Five-Year Plan R. M. Goodwin
An Approach to Indian Planning D. R. Gadgil
Industrial Capacity and Utilisation Jagdish Bhagwati
Wage Movements Since Independence B. N. Datar
Export Strategy for the Next Decade Surendra Patel

OTHER ARTICLES

- Central Government's Capital Expenditure 1950-51 to 1961-62 I. S. Gulati
Money, Banking and Monetary Control M. F. Posner
The Cuban Revolution: Some Whys and Wherefores Andrew Gunder Frank
By-Products of the Census of 1961 Anok Mitra
Indian Cities Bert F. Hoselits
Chamar Family in a North Indian Village Bernard S. Cohn

THE ECONOMIC WEEKLY is independent, analytical and factual.
To understand new India and to follow how its agriculture-based
mixed economy is showing, you can do no better than read
THE ECONOMIC WEEKLY regularly.

Annual Subscription: Inland Rs24, Foreign Rs27 or 40s or \$6.00.

THE ECONOMIC WEEKLY
65, Apollo Street, Fort, Bombay-1.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE QUARTERLY REVIEW OF ECONOMICS AND BUSINESS

Vol. 1

November 1961

No. 4

ARTICLES

- The Soviet Oil Offensive *Harold Lubell*
 European Consumers in a Changing Environment *J. Frederic Deuhurst*
 Assessing Union-Management Relationships *Milton Derber, W. E. Chalmers, and Milton T. Edelman*
 A Critique of Long-Range Forecasting *F. Lewis Basse*
 The American Approach to Foreign Aid and the Thesis of Low Absorptive Capacity *Bayre P. Schatz*
 Federal Taxation of Deposit-Type Financial Institutions *Edward W. Reed*
 Psychology and the Business Sciences *James F. Engel*
 The International Element in Basic Managerial Education: A Symposium *John Fayerweather, Emile Benoit, J. Hart Walters, and Richard M. Clewett*
 Federal Tax Reform: A Review Note *John F. Due*

BOOK REVIEWS AND BOOKS RECEIVED

THE QUARTERLY REVIEW OF ECONOMICS AND BUSINESS is published in February, May, August, and November by the Bureau of Economic and Business Research, College of Commerce and Business Administration, University of Illinois. It presents factual information and interpretive comment on economic and business questions.

Subscription rates are \$3.00 a year for individuals and \$5.00 a year for organizations and associations. The single copy price is \$1.50.

Manuscripts and communications for the editors and business correspondence should be addressed to THE QUARTERLY REVIEW OF ECONOMICS AND BUSINESS, Box 658, Station A, Champaign, Illinois.

PUBLIC FINANCE/FINANCES PUBLIQUES

International Quarterly Journal founded by J. A. Monod de Froideville
 Publisher/Editeur

Foundation Journal Public Finance/Fondation Revue Finances Publiques
 (Stichting Tijdschrift voor Openbare Financiën)

Vol. XVI

1961

No. 2

Allan Williams

Fiscal Policy and Interregional Resource Allocation

Stanley S. Surrey &
 Oliver Oldman

Report of a Preliminary Survey of the Tax System of Argentina

Sei Fujita

Political Ceiling on Income Taxation

Notes and Discussions/Notes et discussions

Paul Davidson

Wells on Excise Tax Incidence in an Imperfectly Competitive Economy

Paul Wells

A Reply

M. Kenan Bulutoglu

Note sur les origines du théorème de la pression fiscale différentielle de l'impôt indirect: la contribution de C. Colson

Book Reviews/Comptes Rendus
 New Publications/Publications nouvelles
 Contributions in French or German are followed
 by an English summary.

Committee of Directors: M. Masolo, Alan T. Peacock, B. Schendetek, P. Senf

Correspondence should be addressed to Prof. Dr. P. Senf, Universität des Saarlandes, Saarbrücken 15, Germany. Orders may be placed with the representative in the United States, Stechert Hafner Inc., 31 East 10th Street, New York, or directly with the Administration, 150 Rieuwastraat, The Hague, Netherlands. Subscription rate for 1 year: \$10.50.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

Scottish Journal of Political Economy (The Journal of the Scottish Economic Society)

Vol. VIII

NOVEMBER 1961

No. 3

Some Recent Contributions to a Macro-Economic Theory of Income Distribution . . .	<i>K. W. Rothchild</i>
John Millar	<i>A. L. Macfie</i>
Property Speculators and the Building of Glasgow, 1703-1800	<i>J. H. Kellett</i>
Economic Problems of a Multi-racial Society—The Fiji Case	<i>A. T. Peacock</i>
A Note on Regional Differences in Productivity, Profitability and Growth . .	<i>R. L. Smyth</i>
A Note on Cost Inflation in the U.S.A.	<i>A. E. Holmans</i>

The *Scottish Journal of Political Economy* is published in February, June, and October, and is free to members of the Scottish Economic Society. Applications for membership should be made to the Treasurer, Scottish Economic Society, 142 St. Vincent Street, Glasgow C.2., enclosing the annual subscription of £1:5:0. The *Journal* may also be obtained by non-members of the Society by ordering through any bookseller or direct from the publisher Oliver & Boyd, Tweeddale Court, Edinburgh, price 10/- per single copy.

REVISTA DE ECONOMIA POLITICA (Cuatrimestral) **CONSEJO DE REDACCION** **Enrique FUENTES QUINTANA**

Núm. 29

Septiembre-Diciembre, 1961

J. MARTINEZ DE IBARRETA: "El problema de las ampliaciones de capital y su repercusión en las inversiones burátiles"	
E. FOSSATI: "Algunas notas sobre Economía y Econometría"	
G. SCHMIDT: "La lucha contra las crisis económicas"	
ESTUDIOS Y DOCUMENTOS DE ECONOMIA ESPAÑOLA	
J. VELARDE FUERTES: "Una nota sobre la evolución de la Economía Española en 1.960 según el Banco de España"	
ESTUDIOS Y DOCUMENTOS DE ECONOMIA EXTRANJERA	
LOS PROBLEMAS DE LA ECONOMIA SOVIETICA: (Informe del CED):	
G. Grossman: "La planificación como médula de una nación"	
H. Stein: "Los desarrollos de la técnica"	
G. Terborgh: "Problemas y perspectivas de la industria soviética"	
F. A. Bond: "Los organizadores de la U.R.S.S."	
L. Herman: "La fuerza laboral: Que hace cada uno"	
T. W. Schultz: "El capital humano: Un activo creciente"	
H. Heyman: "Señales de tormenta para el Occidente"	
PERSPECTIVA HISTORICA DEL PENSAMIENTO ECONOMICO	
A. Coán Bermúdez: "Gaspar Melchor de Jovellanos"	

PRECIOS DE SUSCRIPCION ANUAL

Número suelto	70 ptas.
España	150 ptas.
Portugal Iberoamérica Filipinas	170 ptas.
Otros países	185 ptas.

Instituto de Estudios Políticos
Plaza de la Marina Española, 8, MADRID—13 (España)

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

INTERNATIONAL SOCIAL SCIENCE JOURNAL



A quarterly review published by UNESCO, the United Nations Educational, Scientific and Cultural Organization.

Just issued: THE YUGOSLAV COMMUNE

Volume XIII, Number 2, 1961

Part I: THE COMMUNAL SELF-GOVERNMENT SYSTEM IN YUGOSLAVIA, by Jovan Djordjević, Chairman of the Legal Council and Federal Executive Council, Belgrade and Najdan Pašić, High School of Political Sciences, Belgrade.
THE COMMUNAL ECONOMY, by Kiro Gligorov, Secretary in Charge of General Economic Affairs, Federal Executive Council, Belgrade.
THE COMMUNE AND SOCIAL POLICY, by Branka Savić, Assistant Secretary in Charge of Social Policy, Federal Executive Council, Belgrade.
THE ROLE OF THE COMMUNE IN EDUCATION AND CULTURE, by Milka Minić, President, Educational Council of the People's Federated Assembly, Belgrade.
BASIC STATISTICS ON THE YUGOSLAV COMMUNES, by Miloš Macura, Deputy Director, Federal Statistical Office, Belgrade.
REPORTS AND DOCUMENTS, covering the training of officials in administrative organs of the people's committees, The Permanent Conference of Yugoslav Cities, Statutes of the Commune of Kranj and selected bibliographical data.

Part II: The World of the Social Sciences; Current Studies and Research Centers (32 pages) **Reviews and Documents of Books** (34 pages) **News and Announcements** (24 pages).

Annual subscription \$6.50

THIS ISSUE—\$2.00

Order from: UNESCO PUBLICATIONS CENTER
801 Third Avenue, New York 22, N.Y.

ÉCONOMIE APPLIQUÉE

Archives de l'Institut de Science Economique Appliquée
(The French Journal of Economic Science)

Tome XIV—N° 2-3

Avril-Septembre 1961

- J. RUSSO, Introduction.
 J. FOURASTIÉ, Remarques sur l'introduction de la notion de progrès technique dans la science économique.
 W. G. WAFFENSCHEIDT, Recherche-développement et production.
 R. PRÉ, Des interconnexions de la recherche et des processus de développement dans les pays industrialisés.
 F. MACHLUP, L'offre d'inventeurs et d'inventions.
 F. MACHLUP, Invention et recherche technique.
 P. JACQUEMIN, Elaboration d'un programme de recherches.
 R. H. WILLIAMS, Conditions de l'innovation industrielle.
 B. H. WILLIAMS, Variations par secteurs de l'effort de recherche-développement en Grande-Bretagne.
 J. SCHMOOKLER, La répartition des inventions dans l'industrie.
 Ch. SADRON, Recherche scientifique pure et recherche appliquée dans les relations.
 F. ROBIN, Recherche officielle et recherche privée.
 Général GUERIN, Recherche militaire et économie.
 L. ESTRANGIN, Stratégie de la propagation de l'information technique dans les milieux agricoles.
 R. L. MEIER, La théorie économique de l'éducation dans les sociétés en voie de développement.
 D. B. HERTZ, La recherche-développement considérée comme facteur de production.
 S. S. SENGUPTA, La stratégie et l'économie de la recherche.
 J. GUILLOT, Le développement économique de l'Algérie (Cahier F-15).
 G. LEDUC, Y. LE PORTZ, Y. OULID AÏSSA, G. de BERNIS, M. FILALI, P. BAUCHET, A. BEN-KIRANE, M. CAPET, G. d'ARBOUSSIER, L. REY, LE THANH KHÔI, K. SAMPHAN : L'investissement dans les pays d'outre-mer (Cahier F-16).
 J. LACROIX, G. GRANGER, H. LEFEBURE, R. BOIREL, F. MEYER, S. LANTIERI, J. POIRIER, K. E. BOULDING, F. FERROUX, V. MARRAMA, P. LAMBERT (Cahier M-9). Le Progrès.

ECONOMIE APPLIQUÉE et CAHIERS DE L'INSTITUT DE
SCIENCE ECONOMIQUE APPLIQUÉE

Directeur: François FERROUX; Secrétaire Général: H. BONJOUR
(I.S.E.A., 35, Boulevard des Capucines, Paris 2e).

The subscription price is 2,800 Frs. per year.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

OXFORD ECONOMIC PAPERS

Editorial Board: N. H. Leyland (General Editor), P. D. Henderson, J. R. Hicks, C. M. Kennedy, Sir Donald MacDougall, G. B. Richardson, M. F. G. Scott, J. F. Wright (Secretary).

Volume 13

June 1961

Number 2

CONTENTS

- On Teaching Public Finance. By URSULA K. HICKS
 Direct Additivity and Consumers' Behaviour. By H. A. JOHN GREEN
 The Nature and Effects of Gold Hoarding in Under-Developed Economies. By A. G. CHANDAVARRAR
 The International Monetary Fund and Balance of Payments Adjustment. By W. R. ALLEN
 Costs in Retail Distribution in Great Britain, 1950-7. By S. POLLARD and J. D. HUGHES
 Inflation and Growth: Some Lessons to be Drawn from Latin-American Experience. By G. MAYNARD
 Balanced Growth and International Specialisation: A Diagrammatic Analysis. By J. M. MONTIAS
 Cyclical Fluctuations and Economic Growth. By H. NEISSER
 Cyclical Fluctuations and Economic Growth: A Reply to Mr. Neisser. By L. L. PASINETTI

Oxford Economic Papers is published three times a year in February, June and October. The pre-paid subscription price is 35s. Od. (\$5.25) post free, and the price of a single copy 16s. Od. net. Orders may be placed with any bookseller or sent direct to the Publisher. One specimen copy will be sent free on request.

OXFORD UNIVERSITY PRESS
 AMEN HOUSE, WARWICK SQUARE, LONDON, E.C.4.

INTERNATIONAL ECONOMIC PAPERS

No. 10, 1960

Translations prepared for the International Economic Association

CONTENTS

Preface

- Tax Principles and Tax Policy
Ekonomi Politik Samh lle, 1959 Erik Lindahl
 Price Stability, Economic Growth and Income Distribution
Schweizerische Zeitschrift f r Volkswirtschaft und Statistik, 1959 Gottfried Bombach
 International Inequalities and General Criteria for Development Aid
The Economist, 1953 H. Theil
 New on the Cost of Railway Transport
Annales des Ponts et Chauss es, 1886 W. Nordling
 Marginal Utility
Handw rterbuch der Staatswissenschaften, 1927 Paul Rosenstein-Rodan
 Inflation in Chile: An Unorthodox Approach
El Trimestre Econ mico, 1958 Osvaldo Sunkel
 The Stockholm School versus the Quantity Theory
Ekonomisk Tidskrift, 1943 Bertil Ohlin
 The Role of Amortization in Investment Programming
Revue de Recherche Op rationnelle, 1957 Maurice Boiteux
 Some Problems of Price Formation in a Socialist Economy
Voprosy Ekonomiki, 1957 Y. Malishev
 Frederik Zeuthen
National konomisk Tidskrift, 1959 Hans Br m
 Classified Index of I.E.P., Volumes 1-10

London
 Macmillan & Co. Ltd.

New York
 The Macmillan Company

A special price of \$5.80 net, plus 12 cents postage, has been arranged in co-operation with The Macmillan Company for members of the American Economic Association. Purchases at the special rate may be made by placing an order with Dr. James Washington Bell, Secretary, American Economic Association, Northwestern University. A covering check, made out to The Macmillan Company, must accompany the order.

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

THE REVIEW OF ECONOMIC STUDIES

Vol. XXVIII (3) No. 77

June 1961

- The Analogy Between Atemporal and Intertemporal Theories of Resources Allocations *E. Malinvaud*
 Comparative Advantage and the Theory of Tariffs: A Multi-country, Multi-commodity Model *Ronald W. Jones*
 Additive Logarithmic Demand Functions and the Slutsky Relations *Kenneth J. Arrow*
 Imperfect Capital Markets and the Theory of Investment *Lucian Foldes*
 Monopolistic Competition and General Equilibrium *Takashi Negishi*
 Congestion and Idle Capacity in an Economy *A. B. Arnes and H. B. Malmgren*

Annual subscription rates are: U.K., 25/- per year (10/- a single number); U.S. and Canada, \$5.00 per year (\$2.00 per single number). Back number rates on application to Secretary.

With Vol. XVI(1), the *Review* reverted to three issues per volume. The new subscription rates appear above. Editorial communications should be sent to the Editor, *Review of Economic Studies*, Nuffield College, Oxford. Articles from the U.S.A. and Canada should be sent to P. A. Samuelson, Massachusetts Institute of Technology, Cambridge, Mass. All other communications to the Secretary, *Review of Economic Studies*, 4 Trumpington Street, Cambridge, England.

Cheques should be made payable to the *Review of Economic Studies*.

FOOD RESEARCH INSTITUTE STUDIES

Volume II

May 1961

Number 2

Contents

- Agricultural Productivity, Economic Growth, and Urban Electorates *Karl Brandt*
 Change in the American National Diet, 1879-1959
 *Merrill K. Bennett and Rosamond H. Peirce*
 The Food Economies of Urban Middle Africa: The Case of Ghana
 *Thomas T. Poleman*

Food Research Institute Studies is published in February, May and November. Annual subscription, \$7.00. Single copy, \$2.50. Bound reprints of most articles, \$1.00 each.

FOOD RESEARCH INSTITUTE

Stanford University

Stanford, California

Please mention THE AMERICAN ECONOMIC REVIEW When Writing to Advertisers

**FROM
MACMILLAN:
TEXTS
WITH
AN**



EYE TO THE FUTURE

In Marketing —

PRINCIPLES OF MARKETING

Rayburn D. Tousley and Eugene Clark, State College of Washington, and the late Fred E. Clark

This introductory text provides students with a thorough understanding of the marketing system, its importance in the economy, and its place in business management. Emphasizing *functional analysis*, the authors successfully bridge the gap between economic theory and marketing practice. Material on retailing, marketing costs, efficiency, and price theory is completely up-to-date and extensive. *December, \$8.00*

Research —

**RESEARCH METHODS
IN ECONOMICS AND BUSINESS**

Robert Ferber, University of Illinois, and P. J. Verdoorn, Rotterdam School of Economics

Consolidating research methods from marketing and other social sciences, the authors illustrate various ways to apply them to research problems in business and economics. Problems based on realistic situations follow each chapter, highlighting the practical aspects of each technique. Stimulating discussions provide valuable insights into the organization of research projects. *February, 1962*

Insurance —

INTRODUCTION TO INSURANCE

Allen L. Mayerson, University of Michigan

This new text offers a complete analysis of the principles of insurance, emphasizing types of coverage for the individual consumer — automobile insurance, fire and theft insurance on homes and personal property, life insurance, health insurance and retirement plans. The book provides students with an excellent background for the study of more complex problems in business insurance and other specialized fields. *March, 1962*

Agricultural Economy —

**FARM BUSINESS MANAGEMENT:
THE DECISION MAKING PROCESS**

Emery M. Castle and Manning Becker, Oregon State College

Here is a detailed introduction to farm management, followed by discussions of the tools and techniques that are basic to the study of farm organization and management. Actual farm problems are analyzed, along with managerial problems associated with specific enterprises and factors of production. *April, 1962*

THE MACMILLAN COMPANY • 60 Fifth Avenue • New York 11, New York
A Division of The Crowell-Collier Publishing Company

NEW TEXTS FOR COLLEGE CLASSES

THE FOUNDATIONS OF ECONOMICS

by WILLIAM A. KLING

University of Pennsylvania

There is a growing demand for a text which will give the student a clear and comprehensive picture of the basic principles of economics. This book is designed to meet this demand. It is a concise, logical, and well-organized presentation of the fundamental concepts and principles of economics. The author, William A. Kling, is a distinguished economist and professor at the University of Pennsylvania. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes. It covers the basic principles of economics, including the theory of the firm, the theory of the consumer, and the theory of the market. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes.

March 1952 300 pages, 10" x 6" cloth, \$3.50

Mathematics of Economics

by WILLIAM A. KLING

University of Pennsylvania

1952 100 pages, 10" x 6" cloth, \$2.50

Mathematics of Economics is a book which will give the student a clear and comprehensive picture of the basic principles of economics. It is a concise, logical, and well-organized presentation of the fundamental concepts and principles of economics. The author, William A. Kling, is a distinguished economist and professor at the University of Pennsylvania. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes. It covers the basic principles of economics, including the theory of the firm, the theory of the consumer, and the theory of the market. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes.

March 1952 100 pages, 10" x 6" cloth, \$2.50

Selected Readings in Economics

by WILLIAM A. KLING

University of Pennsylvania

1952 100 pages, 10" x 6" cloth, \$2.50

Selected Readings in Economics is a book which will give the student a clear and comprehensive picture of the basic principles of economics. It is a concise, logical, and well-organized presentation of the fundamental concepts and principles of economics. The author, William A. Kling, is a distinguished economist and professor at the University of Pennsylvania. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes. It covers the basic principles of economics, including the theory of the firm, the theory of the consumer, and the theory of the market. The book is written in a clear, logical, and well-organized manner, making it an excellent text for college classes.

March 1952 100 pages, 10" x 6" cloth, \$2.50

WILEY-INTERSCIENCE, Inc. and JOHN WILEY & SONS, New York

